

# Minimum Wages, Morality, and Efficiency: A Choice Experiment

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## Abstract

We use a choice experiment to examine public support for minimum wages. We first elicit respondents' moral assessment of two labor market systems: one with a minimum wage and one without. Then, we present four pairs of hypothetical employment outcomes and ask respondents to "vote." Our regression estimates suggest that the average respondent requires a 4.65 percentage point reduction in unemployment before they would support a system without a minimum wage. We also find that equity matters; respondents are 19.7 percentage points less likely to support a minimum wage when minorities and females are disproportionately affected.

**Keywords:** Minimum Wages, Employment, Morality, Efficiency, Consequences, Preferences

**JEL Codes:** J31, J38, D47, D63, J47, J48, J88

## 1 Introduction

Economists are interested in understanding how minimum wages affect employment outcomes (Card, 1992; Card and Krueger, 1994; Neumark and Wascher, 2004, 2007; Addison et al., 2009; Dube et al., 2010; Sabia and Burkhauser, 2010; Allegretto et al., 2011; Neumark et al., 2014; Meer and West, 2016; Jardim et al., 2017, 2018). In contrast, public and political discussion of minimum wages often considers issues of fairness, equality, right versus wrong, exploitation, dignity, and "living" wages.<sup>1</sup> 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.

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<sup>1</sup>For example, see former President Obama's April 2014 remarks here: <https://obamawhitehouse.archives.gov/the-press-office/2014/04/30/remarks-president-raising-minimum-wage>.

In the experiment, respondents encounter two hypothetical labor market systems: one with a minimum wage (\$7.25, \$10.10, or \$15) and one without.<sup>2</sup> 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 zero to eight percentage points. Respondents then “vote” for their preferred system within each pair.<sup>3</sup>

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.<sup>4</sup> Moreover, our findings suggest that support for minimum wages cannot be explained by a desire to maximize aggregate income for workers; all else equal, our estimates suggest that the average respondent is about eight percentage points less likely to support a minimum wage of \$15 relative to \$10.10 or \$7.25. Focusing on the average respondent masks considerable heterogeneity; 41.5% of respondents always vote for the system with a minimum wage, while 27.1% of respondents always vote for the system without a minimum wage. Notably, respondents’ choices largely reflect differences in their moral assessments of the two systems.<sup>5</sup>

We also examine if respondents’ choices are sensitive to the identity of those affected by the minimum wage. To do so, we provide half of the respondents with information on how females and minorities are affected. Among respondents given such information, we tell one out of every three that the effects are distributed equally throughout the population. We tell the remainder that females and minorities are disproportionately affected. When the effects are distributed evenly, there is no observable difference in choices (compared to the choices of respondents who received no information). On the other hand, respondents are up to 19.7

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<sup>2</sup>Our experimental design is inspired by Elias et al. (2016), who examine Americans’ willingness to support private or publicly-financed payments to kidney donors. University of Louisville IRB Protocol 18.0002, approved September 5, 2018.

<sup>3</sup>We describe the experiment in greater detail in Section 3. The experiment remains available to complete at [http://louisville.az1.qualtrics.com/jfe/form/SV\\_39Keupyg3Vnqt49](http://louisville.az1.qualtrics.com/jfe/form/SV_39Keupyg3Vnqt49).

<sup>4</sup>Put another way, respondents are willing to tolerate up to 4.65 percentage points of additional unemployment before they will stop supporting a system with a minimum wage.

<sup>5</sup>For example, those who always choose the system without a minimum wage assess that system to be 41% less morally problematic than other respondents.

percentage points less likely to support a system with a minimum wage when females and minorities are disproportionately affected.

Section 2 connects this paper to the relevant literature surrounding the political economy of the minimum wage and the economics of morally troublesome (“repugnant”) transactions. Section 3 describes the choice experiment.<sup>6</sup> Section 4 describes our main findings. As the experiment relies on a convenience sample, Section 5 reports on the representativeness of our sample. This includes sensitivity and heterogeneity analyses along with measures of attention and preference stability.<sup>7</sup> Section 6 concludes the paper.

## 2 Literature

Card (1992) and Card and Krueger (1994) find that minimum wages are not associated with employment losses. In particular, Card and Krueger examine employment levels at fast-food restaurants on either side of the Pennsylvania and New Jersey border shortly before and after New Jersey raised its minimum wage and find no negative impact after the minimum wage changes. Card and Krueger’s findings are supported by the work of Addison et al. (2009), Dube et al. (2010), Allegretto et al. (2011), and several others.

On the other hand, Neumark and Wascher (2004) find that minimum wages harm certain groups, including younger workers. Indeed, Neumark and his coauthors have published extensively on the negative effects of the minimum wage (see, for example, Neumark and Wascher, 2000, 2007 and Neumark et al., 2014). Sabia and Burkhauser (2010) and Meer and West (2016) also suggest minimum wages have negative effects. Jardim et al. (2017) study what happened in Seattle when the city instituted a minimum wage increase to \$12.50 for larger employers in 2016 and \$13 for large employers who did not contribute to their employees’ health coverage.<sup>8</sup> They find a large negative effect on low-skilled workers’ employment and earnings. The effects are large enough to leave low-skill workers worse off as a group; average earnings for a low-skill worker in Seattle after the minimum wage are \$125 per month lower

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<sup>6</sup>A sample experiment experienced by an actual respondent is presented as an Appendix item.

<sup>7</sup>Appendices B and D complement Section 5.

<sup>8</sup>See [http://www.seattle.gov/Documents/Departments/LaborStandards/OLS-MW-Chart-082016\\_3\\_13.pdf](http://www.seattle.gov/Documents/Departments/LaborStandards/OLS-MW-Chart-082016_3_13.pdf).

than what they would have been in the absence of the higher minimum wage, if the identifying assumption holds. However, in a follow up study, the same authors follow individual workers over time and find that the Seattle minimum wage increase “raised earnings by an average of \$8-\$12 per week.” For more on this, see Jardim et al. (2018).

What is important to note is that, regardless of findings, the focus of economic research on minimum wages is squarely on how minimum wages affect labor market outcomes. In contrast, employment consequences seem to be only a minor component of the public and political debate surrounding minimum wages. For example, arguments for and against minimum wages often consider issues of fairness, equality, right versus wrong, exploitation, dignity, and “living” wages. These are terms associated with issues of morality and used often in the literature on repugnance (see Roth, 2008). The lack of focus on employment consequences in the public debate may reflect gaps in economic education. However, it is also possible that public support for minimum wage legislation is deontological in nature: there might be something morally impermissible about low wages. If so, consequentialist arguments focused on the employment effects of minimum wages will be ineffective.<sup>9</sup> This echoes Roth’s argument about how to broach the permissibility of kidney sales: “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.”

Because low wages might be morally problematic, we examine the issue of minimum wages via the lens of repugnance. Researchers who work on the economics of repugnant transactions do not proceed by assuming that public support for or opposition to the issues they study will be swayed by arguments which rest on the effects of changed legislation one way or another. For example, allowing legal payment for sex has been shown to lead to favorable outcomes (Cunningham and Shah, 2017) but few would expect research to sway public opinion on the relative merits of legal prostitution. Many people are simply fundamentally opposed to gun ownership, genetic modification, gambling, usury, alcohol consumption, sex outside marriage, ticket scalping, and pornography regardless of efficiency or welfare gains. For these people, the consequences are not relevant: the act itself is morally wrong.

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<sup>9</sup>Consequentialist arguments focused on other outcomes may be more effective.

Social scientists have acknowledged these kinds of deontological preferences when discussing the economics of repugnance. Examples include sexual encounters (Fiske and Tetlock, 1997), horse meat and price-gouging (Roth, 2008), and human organs (Elias et al., 2016). The case of price-gouging discussed by Roth is particularly relevant to this paper. Roth notes that after a natural disaster there appears to be no issue with selling supplies at their regular pre-disaster price, but it is viewed as offensive to sell supplies at a higher price.<sup>10</sup> In this case, Roth explains that it is the level of the price that is offensive rather than the act associated with the price. Uber's pricing system is a similar example. In both cases, the underlying economic activity is permissible but the price can become offensively high.<sup>11</sup> We ask if support for the minimum wage may be rooted in the idea that the price of labor is offensively low. This would be a surprising turn of events given the origins of the minimum wage were overtly eugenic and discriminatory in the U.S. (Leonard, 2005). However, Roth highlights that moral repugnance is hard to predict and in a constant state of flux. Activities that were once common are no longer acceptable (slavery, corporal punishment in schools, short-selling in financial markets) and *vice-versa* (the sale of alcohol, usury, same-sex marriage).

If support for minimum wage legislation is a moral issue then allowing people to work for less than some nominal minimum wage is morally problematic in much the same way that payment for sexual activities or internal organs is repulsive to many people. These individuals are not fundamentally against the concept of wage-based employment, people having sex, or transferring a kidney from one person to another. However, working for less than \$7.25 (or some other number), engaging in sex for money, or selling a kidney to the highest bidder is morally impermissible. Roth (2008) emphasizes that this kind of repugnance exerts a real and binding constraint on markets. The constraint arises through both social norms and/or formal legislation banning or disincentivizing certain activities and transactions. Roth claims that the desire to impose moral constraints on others comes from one or more of three sources of repugnance. First, objectification: putting a price (or a lower or higher price) on something

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<sup>10</sup>To a consequentialist this appears cold-hearted. They see rising prices as a way to coordinate market responses and ensure people do not starve or die of thirst after a natural disaster.

<sup>11</sup>Other explanations are possible, including the idea that the price is not what is objectionable: it correctly reflects the social cost of providing the good. Instead, the higher price changes the equitable nature and moral permissibility of market-based exchange. See Snyder (2009) for more on this topic.

might classify that thing as an object. For instance, allowing payment for sex has implications for sexual relations within a relationship. Second, coercion: prices affect behavior. The concern here is paternalistic in nature. For example, kidney donors might be disproportionately poor or young people if large monetary payments are allowed. In time, they might regret these decisions. Third, the slippery slope: allowing a watered-down version of an activity could cause the floodgates to open. Examples include strip-clubs leading to prostitution, marijuana legalization leading to a narcotics free-for-all, and how allowing heavily-regulated payments for kidneys could eventually lead to a “commercial dystopia” where kidneys are used as collateral for loans or sold on eBay.<sup>12</sup>

To summarize his argument, Roth provides a table listing the types of activities and transactions that are or are once considered morally problematic. These are activities many wish to engage in but third parties wish to prohibit. Moreover, they wish to prohibit them even though there are efficiency losses from the precluded exchange. Note that just because a transaction is generally impermissible, does not indicate that it must belong on Roth’s list. It seems necessary that people must be against the transaction taking place even when it could promote economic welfare and efficiency as subjectively determined by the participants who partake in the repugnant activity or exchange.<sup>13</sup> This paper considers if the concept of working for a wage below the nominal minimum wage deserves to be included in Roth’s table of morally repugnant transactions. To do so, we implement a choice experiment with 2,219 Americans. The next section explains our experimental design.

### 3 The Choice Experiment

Our choice experiment is implemented in Qualtrics and we recruit participants from Amazon’s mTurk service. We restrict participation to U.S. residents aged 18 or older.<sup>14</sup> Appendix B explains participant recruitment, pre-testing, payments, average earnings and time taken, and

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<sup>12</sup>Recall the case of Catarina Migliorini, a young Brazilian woman who attempted to auction her virginity for \$780,000. See [https://www.huffingtonpost.com/2014/01/29/catarina-migliorini\\_n\\_4681288.html](https://www.huffingtonpost.com/2014/01/29/catarina-migliorini_n_4681288.html).

<sup>13</sup>For example, contrast the concepts of murder and euthanasia.

<sup>14</sup>This avoids having to report wages in a variety of currencies, having to create versions of the survey in multiple languages, or having to frame the experiment for several national labor markets.

the results of various checks on participants' attention. In this section, we will focus on the core of the experiment.

Our experimental design is inspired by Elias et al. (2016), who examine if individuals would be willing to tolerate payments to kidney donors. They present private or public payments as alternative options for organizing the market for kidneys and elicit whether each system is viewed as fair, exploitative, or coercive to kidney donors and recipients. Then, they present participants with hypothetical outcomes describing how many kidneys would be procured and ask survey participants to "vote" for their preferred option (the current "no payment" system is also an option). The Elias et al. approach is ideal for examining how controversial market transactions are viewed. They focus on a currently-forbidden transaction (at any positive price) and find that their respondents would be willing to tolerate payments to kidney donors for relatively mild increases in the number of kidneys procured, particularly when the payment is made from a third party rather than the payment coming from kidney recipients. That is, people seem to only find payments from recipients to donors repugnant, and not payments *per se*.

We use a modified version of the Elias et al. approach to examine if another forbidden transaction - working for or employing workers at a wage less than a legal minimum - is forbidden for repugnant reasons. That is, Elias et al. know the topic they are studying is a repugnance issue and are seeking to isolate the source of the repugnance. To do so, they offer two ways to improve efficiency in the market for kidneys. In both systems, they relax existing price controls to allow the market to move towards an efficient outcome. For our experiment, to increase efficiency (employment) we have to relax the price floor. The simplest way to explain this to participants is to say the federal minimum wage is eliminated. Therefore, our experiment compares two systems: one with a minimum wage (denoted System A) and one without (denoted System B).<sup>15</sup> The next subsection provides the details of the experimental procedure.

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<sup>15</sup>See Appendix E for more on how our work relates to Elias et al.'s.

Table 1: Description of Alternative Systems

System	Description to Participants
System A	This system features a minimum wage of \$X per hour worked. This minimum applies in all 50 U.S. states and employers must pay their employees at least \$X per hour. Any employer who pays any worker a wage below \$X would be guilty of a federal crime under the Fair Labor Standards Act.
System B	The federal government abolishes all minimum wages. For the purposes of this survey, please assume that this law would apply equally in all 50 U.S. states and would override existing laws in all states. That is, there would be no minimum wage law anywhere in the United States. Workers and employers would negotiate hourly wages on a case-by-case and person-by-person basis. All wage agreements that workers and employers agree to are completely legal.

In this table, we report the labor market systems described to participants. We set \$X to be \$7.25, \$10.10, or \$15 with probabilities of 20%, 40%, and 40% respectively. See Table 2 for more info on assignment to treatment conditions.

### 3.1 Experimental Procedure

We completed our experiment in September of 2018. We first posted a “Human Intelligence Task” (HIT) on the mTurk system. The HIT required mTurk workers to click on a link to a Qualtrics survey containing the choice experiment.<sup>16</sup> The first screen they see explains their rights as a research subject and allows them to provide informed consent. Then, the experiment proceeds in four stages.

In stage one, we present the options for organizing the labor market to participants. As part of this, but prior to observing the alternative systems, we present participants with some background information on what a minimum wage is, what it does, and who it typically applies to. We also explain how it varies across the United States. In addition, to encourage truthful responses, we advise participants that our findings will be made public via op-eds in major newspapers. The descriptions of System A (minimum wage) and System B (no minimum wage) are summarized in Table 1. The complete text of the experiment is available in Appendix A.

<sup>16</sup>They return at the end of the survey to input a unique code for payment.



Notice that the value for the minimum wage observed by a respondent is denoted as \$X in Table 1. This is because we assign each respondent to one of three minimum wage levels: \$7.25, \$10.10, or \$15 with probabilities of 20%, 40%, and 40%. In addition, we set System A (minimum wage of \$X) unemployment to be 8 percent or 10 percent.<sup>17</sup> Finally, we assign each respondent to one of three potential information treatments regarding the distribution of unemployment effects by race and gender. In particular, we tell one-sixth of our respondents that females and minorities comprise 45% and 40% of the labor force in the experiment’s fictional city, and that females and minorities comprise 45% and 40% 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% and 70% of those unable to find work under System A, but only 45% and 40% under System B (“unequal effects”). The remainder observe no information on the distribution of employment effects by race and gender. In sum, these parameterizations ensure that each participant experienced only one of 18 potential treatment conditions. Table 2 breaks down the frequency of assignment to each condition.<sup>18</sup>

We ask participants to assess each system on five dimensions: exploitation, unfairness to workers, unfairness to employers, human dignity, and subjective values.<sup>19</sup> As an example, when asked about exploitation, the statement respondents observe is “[t]his system exploits workers.” They express their agreement or disagreement using a sliding scale which ranges from zero (strongly disagree) to 100 (strongly agree).

In stage two of the experiment, we ask respondents to vote for their preferred system in four pairs of hypothetical employment consequences. To ease interpretation, we ask respondents to focus on outcomes in a representative U.S. 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,

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<sup>17</sup>Appendix B explains our choice of parameters and how they were informed by pre-testing.

<sup>18</sup>The table also highlights the number of responses that we deemed to be valid and how many we discarded due to concerns about data quality (see Appendix B for more on this).

<sup>19</sup>We randomly varied the order of presentation of each system.

Table 2: Summary of Assignment to Treatment Conditions

<b>Minimum Wage Observed</b>	\$7.25	\$10.10	\$15.00	<b>All</b>
Unreliable Responses	40	86	100	226
Duplicate IP Addresses	24	40	38	102
Valid Responses	446	880	893	2,219
<b>Unemployment Treatments</b>				
System A Unemployment = 8,000	225	418	401	1,044
System A Unemployment = 10,000	197	428	454	1,079
No Efficiency/Employment Info Group	24	34	38	96
<b>Race and Gender Information Treatments</b>				
Did not Observe Race/Gender Info	240	442	419	1,101
Observed Race/Gender Info	206	438	474	1,118
Observed Unequal Race/Gender Outcomes	135	296	322	753

Note: Each respondent is assigned one of three minimum wage levels, one of two levels for unemployment in System A (minimum wage), and to one of three potential information treatments regarding the distribution of unemployment by race and gender (no information, equal effects, unequal effects). The table reports on the distribution of respondents to the eighteen potential treatment conditions within the experiment. The table also highlights how many responses are deemed reliable (these respondents passed our built-in attention checks) and how many had to be removed from the sample.

6, 4, and 2 percent.<sup>20</sup> Intuitively, an individual who tends to choose the most efficient outcome can be considered as “consequentialist.”<sup>21</sup> For these people, their support for minimum wages is dependent mainly on its associated employment effects. A moral compass plays a diminished role.<sup>22</sup>

In the third stage of the experiment, to examine the degree to which participants believe their responses matter, we remind participants of our intention to heavily publicize our findings and ask respondents if policy makers *will* be interested in our findings and if they *should* be

<sup>20</sup>Our pretests indicated that we would need relatively large employment differences to generate sufficient variation.

<sup>21</sup>A focus on consequences potentially characterizes academic economists more than any other group of humans - perhaps the reason for the lack of variety in the existing minimum wage literature in economics. Roth notes that in his work as a consultant on market design, discussions have focused on the rights and wrongs of various transactions rather than on efficiency and incentives. Humorously, he notes that the only exception was in his role as chair of the American Economic Association’s Ad Hoc Committee on the Job Market.

<sup>22</sup>Individuals who never choose an option with a minimum wage might be viewed as committed libertarians.

interested in these findings. We find that 83% of respondents believe policy makers should take the findings of this study into consideration (see Appendix D for more on the response to these questions).

In the final stage of the experiment respondents are asked to provide demographic information and to consider a moral dilemma. Respondents' choices in response to this moral dilemma should identify those with consequentialist or utilitarian tendencies. The next subsection describes the characteristics of our experiment participants.

### 3.2 Sample Characteristics

We gathered 2,534 responses to our survey. However, we had concerns about reliability for about 8% of respondents. In particular, our experiment includes (between stage two and stage three) some built-in 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 (102 responses) because it suggests, but does not guarantee, that one person is using several mTurk accounts to complete our survey multiple times.<sup>23</sup> Including these respondents does not meaningfully change our findings. Thus, we obtain 2,219 usable responses.

In addition, we intentionally separate 107 respondents from the main sample because they randomly experience one choice scenario with no information on employment (when this occurs it is always as the first scenario). Similarly to Elias et al. (2016), we do this to give us a baseline distribution of support for the two systems and to check whether support for each system is different when respondents do not observe employment outcomes. Of these 107 responses, 96 are deemed to be reliable responses and 88.5% (85 of the 96) chose System A (minimum wage of \$X).<sup>24</sup> In contrast, System A is chosen in 55.5% of situations where we provide information on employment consequences.

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<sup>23</sup>Notice that  $2,219 \neq 2,534 - 226 - 102$  because there is some overlap between those who provide unreliable responses and duplicate IP addresses.

<sup>24</sup>See Appendix D for more on the reliability of responses.

Table 3: Selected Demographic Characteristics of Experiment Participants

		Democratic	Republican	Neither	All
<b>Count</b>		1,095	614	510	2,219
<b>Demographics</b>	Age	36.2	39.3	35.8	36.9
	Std. Dev.	11.4	12.8	11.1	11.8
	% Male	45.2%	52.1%	51.1%	48.5%
	White	71.8%	87.0 %	68.6%	75.3%
	Black	12.9%	3.1%	10.8%	9.7%
	Other	15.3 %	9.9 %	20.6%	15.1%
	<b>Politics</b>	Liberal-Conservative Scale	1.9	4.0	2.8
Note: 1= Strongly Liberal and 5 = Strong Conservative					
<b>Self-Reported Income</b>	<\$20,000	11.3%	10.4%	17.0%	12.3%
	\$20,000 to \$60,000	50.5%	45.5%	49.2%	48.8%
	\$60,000 to \$100,000	25.3%	27.0%	24.4%	25.6%
	\$100,000 or more	12.9%	17.0%	9.4%	13.3%
<b>Education</b>	Less than High School	0.5%	0.2%	0.8%	0.5%
	High School or Some College	41.6%	44.0%	52.55%	44.8%
	Bachelor's Degree	41.6%	38.6%	34.3%	39.1%
	Graduate Degree	16.4%	17.3%	12.4%	15.7%
<b>Religion</b>	Christian	39.3%	75.4%	36.3%	48.6%
	Other	8.9%	3.4%	9.2%	7.8%
	Atheist/Agnostic/No Affiliation	51.9%	21.2%	54.5%	43.7%
<b>Morality Questions</b>	Some Values are Sacred	4.4	4.3	4.4	4.4
	Suffering for an Ethical Principle is Wrong	3.9	3.5	3.7	3.7
	Freedom from Interference	3.5	3.4	3.6	3.5
	Vaccine Injection	3.5	3.5	3.4	3.5
Note: 1= Strongly Disagree and 5 = Strongly Agree					
<b>Min Wage Experience</b>	Currently Works for Min Wage	7.5%	5.9 %	14.0%	8.9%
	Ever Worked for Min Wage	70.8%	69.8%	65.6%	69.1%
	Never Worked for Min Wage	21.7%	24.3%	20.4%	22.0%
<b>Location</b>	Number of States (incl PR and DC)	51	48	49	52
	Most Common	CA (13.3%)	CA (11.6%)	CA (14.9%)	CA (13.2%)
<b>Repugnance</b>	Average for System A	26.8	32.2	31.3	29.3
	Average for System B	80.3	59.5	69.6	72.1

Note: Data refers to 2,219 valid responses. See Table 2 and Appendix B for more on what is considered a valid response.

Table 3 reports on the demographic characteristics we gathered for the 2,219 participants with valid responses. As we have a convenience participant group, they are not representative of the U.S. population. In particular, the table illustrates that the sample is predominantly democratic-leaning. In addition, while there are respondents from every state, there is a mild west coast bias in the sample. Part of this is due to population: California appears most frequently but we should expect this given California is the U.S.'s most populous state. However, it is over-represented in our data (by about a 1.1 to 1 ratio). States such as Oregon (1.77 to 1) and Nevada (1.47 to 1) are also over-represented relative to their population.

We suspect that this pattern partly arises because we began gathering our data late in the evening on September 7th, 2018. We expected the data gathering process to take 24 to 48 hours and, therefore, the starting time to matter little to the composition of our sample. To our surprise, the data gathering process took just under 12 hours. For Californians, and others on the west coast, this time period was roughly 5pm to 5am. For east coast mTurkers, it was 8pm to 8am. Without knowing in advance how long it will take to gather a given amount of data, it is unclear when the “ideal” time to begin data collection would be. Sensitivity analyses which remove or separately control for over and under-represented states or political groups can address these kinds of imbalances. For a complete breakdown of the geographic representation of respondents relative to the U.S. as a whole, see Appendix D.

### 3.3 Repugnance Ratings

Figure 1 illustrates the assessment of each system on the five dimensions of morality described earlier. As a reminder, each respondent assessed each aspect of each system on a scale from zero to 100.<sup>25</sup> We can see that respondents consider both systems to be relatively fair to employers. On the other four measures, they assess System A to be fairer to workers, less exploitative, more dignified, and more concordant with their personal values. For example, almost 800 of the 2,219 respondents viewed System A as completely fair to workers and not exploitative (they stated “strongly disagree” with the statements “[t]his system is unfair to workers” and “[t]his

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<sup>25</sup>The order in which respondents viewed the two alternative systems is randomized. Unfortunately, we did not set the Qualtrics system to record the order of presentation for this randomization.

## System Ratings on Several Dimensions

100=Strongly Agree

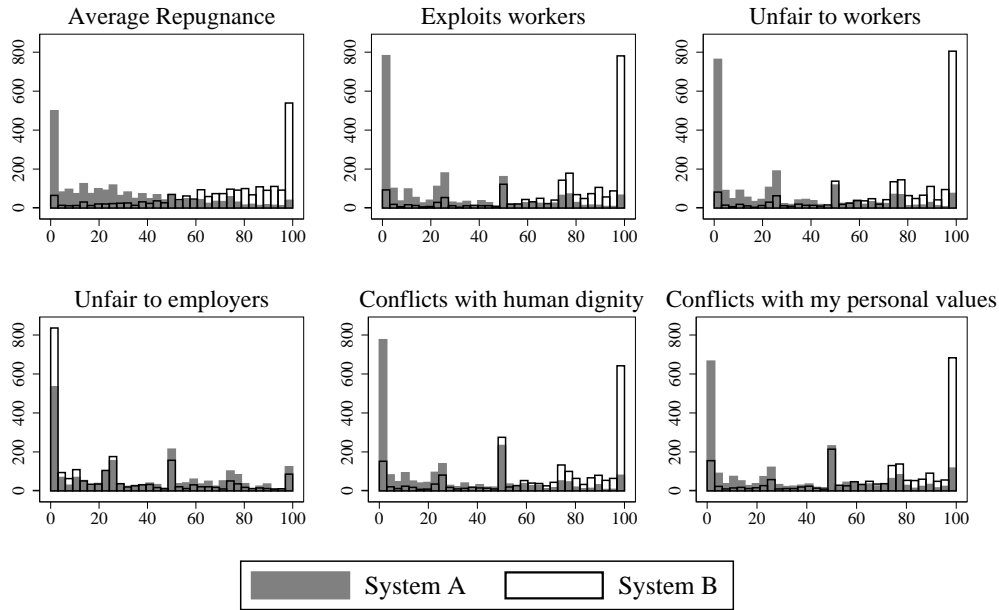


Figure 1: Ratings of System A (minimum wage of \$X) and System B (no minimum wage) on Moral Dimensions.

system exploits workers”). In contrast, about the same number of respondents viewed System B as maximally unfair and exploitative. Because respondents’ assessments are similar for the fairness to workers, exploitation, dignity, and personal values questions, 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.<sup>26</sup> Our estimates are very similar if we use any one of these four measures in place of a four-component average.<sup>27</sup>

### 3.4 Choice Frequencies

Figure 2 reports the pattern of choices across the different minimum wage treatments. In the figure, we see a clear pattern, System A (minimum wage) is chosen frequently (55.5% of the

<sup>26</sup>Because respondents assess them much more similarly than the other four dimensions, we do not include “unfair to employer” (37 out of 100 under System A and 25 out of 100 for System B) in the average repugnance rating.

<sup>27</sup>See Appendix D for a complete breakdown of how each system is viewed, particularly as a function of the minimum wage observed (\$7.25, \$10.10, or \$15) and self-reported political party affiliation.

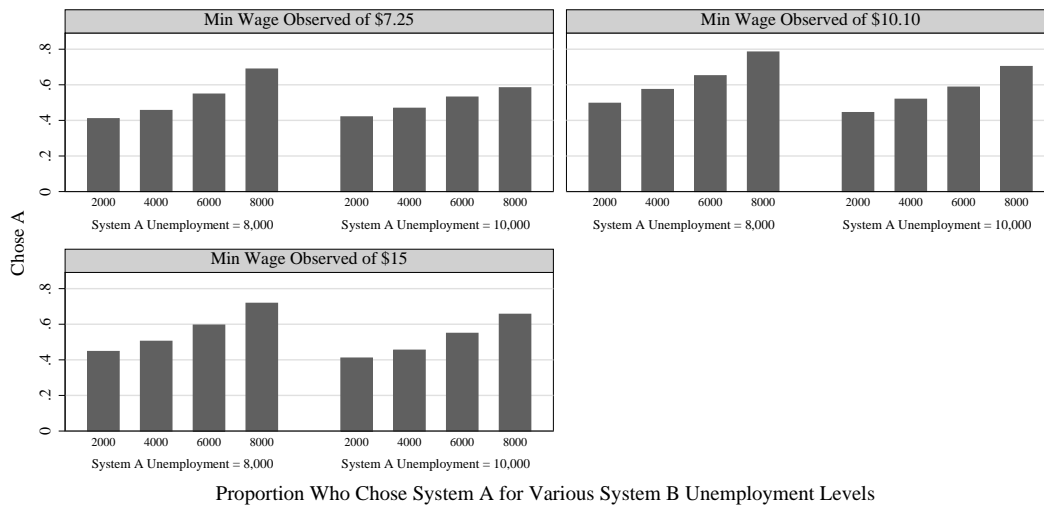


Figure 2: Choices in All Combinations of System A and B Unemployment Levels

time, on average), but is generally less likely to be chosen when System A unemployment is 10% (10,000 out of 100,000) and decreases as the difference in unemployment between the two systems increases. As a reminder, System B unemployment is 8,000 in the first scenario and then 6,000, 4,000, and 2,000 for the next three scenarios. The corresponding choice frequencies for System A in each scenario are 70.0%, 58.1%, 49.9% and 43.9%. These patterns suggest that participants are responsive to the information presented to them.<sup>28</sup>

What is interesting is that the level of the minimum wage appears to affect the frequency of choosing System A in a non-monotonic way. Specifically, the frequency of choosing System A is 64.0%, 53.8%, 46.2%, and 41.5% across the four scenarios for a minimum wage of \$7.25 and 68.6%, 56.8%, 47.5%, and 42.3% for a minimum wage of \$15. However, for any given combination of unemployment under Systems A and B, System A is more likely to be chosen when the minimum wage is \$10.10 relative to when it is \$7.25 or \$15. Specifically, System A is chosen 74.4%, 61.5%, 54.3%, and 46.6% across the four scenarios. These patterns suggest that support for minimum wages cannot be explained only by a desire to maximize aggregate income for workers. If that were the case, we would simply expect a higher wage to be more attractive, all else equal.

<sup>28</sup>Note that Table B.1 in the appendix shows that 96.4% of respondents made choices that respect monotonicity (that is, they did not switch back and forth between System A and B on multiple occasions).

## 4 Main Findings

We present our findings as the coefficient estimates from a linear probability model (LPM).<sup>29</sup>

The basic estimating equation takes the following form:

$$P(\text{Chose } A)_{ic} = \beta_0 + \beta_1 \Delta \text{Repugnance}_i + \beta_2 \Delta \text{Unemployment Rate}_{ic} + \Pi X_{it} + \epsilon_{ic}$$

In the estimating equation,  $P(\text{Chose } A)_{ic}$  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 zero otherwise. The  $\Delta \text{Repugnance}_i$  term reflects the difference between respondent  $i$ 's moral assessment of System A and System B ( $\Delta \text{Repugnance}_i = \text{Assessment of System } A_i - \text{Assessment of System } B_i$ ). The  $\Delta \text{Unemployment}_{ic}$  term reflects the percentage point difference in the unemployment rate between the systems in each choice scenario ( $\Delta \text{Unemployment}_{ic} = \text{Unemp. System } A_{ic} - \text{Unemp. System } B_{ic}$ ). We also include controls,  $X_{it}$ , and an idiosyncratic error term  $\epsilon_{ic}$ . With this setup,  $\beta_1$  and  $\beta_2$  represent percentage point changes in the probability of supporting System A (minimum wage) for each one unit difference in  $\Delta \text{Repugnance}$  and  $\Delta \text{Unemployment}$ .

In the first column of Table 4, we present estimates from a specification without controls. 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  $\Delta \text{Repugnance}_i$  is associated with a 0.44 percentage point reduction in the probability of choosing System A. The mean of  $\Delta \text{Repugnance}_i$  is -42.92, suggesting that, all else equal, the average respondent is 18.88 percentage points ( $-42.92 \times -0.44$ ) more likely to support a minimum wage. The coefficient associated with the unemployment term suggests that a one percentage point increase in  $\Delta \text{Unemployment}_{ic}$  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.

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<sup>29</sup>The estimating equation is better-described as a modified linear probability model because our outcome variable takes on values of zero or one hundred, ensuring that our coefficients are percentage point changes.



Table 4: Main Estimates using Linear Probability Model

	(1)	(2)	(3)	(4)	(5)
	P(Chose A)	P(Chose A)	P(Chose A)	P(Chose A)	P(Chose A)
$\Delta$ Unemployment Rate	-4.059*** (0.195)	-4.646*** (0.252)	-3.379*** (0.438)	-4.724*** (0.266)	-4.556*** (0.493)
$\Delta$ Repugnance	-0.440*** (0.0191)	-0.439*** (0.0267)	-0.438*** (0.0441)	-0.464*** (0.0254)	-0.469*** (0.0194)
System A = 10,000		0.617 (1.937)			0.486 (1.887)
Unemployment Rate $\times$ System A = 10,000		0.637* (0.341)			0.795** (0.345)
Min Wage Observed = \$10.10			0.448 (2.940)		0.413 (2.807)
Min Wage Observed = \$15			-7.848*** (2.981)		-7.124** (2.849)
Unemployment Rate $\times$ \$10.10			-0.843 (0.538)		-0.968* (0.532)
Unemployment Rate $\times$ \$15			-0.795 (0.532)		-0.961* (0.526)
Equal Race and Gender Effects				1.115 (2.600)	1.588 (2.592)
Unequal Race and Gender Effects				-19.74*** (2.355)	-19.37*** (2.347)
Unemployment Rate $\times$ Equal RG				-0.0483 (0.551)	-0.0819 (0.547)
Unemployment Rate $\times$ Unequal RG				1.936*** (0.431)	1.941*** (0.431)
No. of Choices	8,492	8,492	8,492	8,492	8,492
No. of Respondents	2,123	2,123	2,123	2,123	2,123

\*\*\* Significant at the 1% level; \*\* Significant at the 5% level; \* Significant at the 10% level. Standard errors are clustered at the respondent level.

Subsequent columns in Table 4 interact the main effect of repugnance and unemployment with the experimental parameters to examine if and how these affect support for each system. Specifically, in the second column, we include an indicator for System A unemployment of 10,000. We also interact the indicator with  $\Delta Repugnance_i$  (co-efficient estimates not reported in the table) and  $\Delta Unemployment_{iC}$ . Notice that the main effect of  $\Delta Repugnance_i$  is little different to the first column of estimates. While the coefficient on the indicator term is positive, the overall effect is a reduction in the probability of choosing System A of about 7.4 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,  $0.617 - [2 \times 4.646] + [2 \times 0.637] = 7.4$ ). The estimated coefficient on the

*System A*  $\times$   $\Delta$ *Repugnance* interaction term is small and statistically no different from zero. We therefore omit it from the table to economize on space (the same is true in subsequent specifications).

In the third column, we interact  $\Delta$ *Repugnance*<sub>*i*</sub> (again, co-efficient estimates not reported in the table) and  $\Delta$ *Unemployment*<sub>*ic*</sub> with the level of minimum wage observed - \$10.10 or \$15. The associated estimates should be interpreted as relative to the omitted category, \$7.25. Notice that System A appears to be 7.8 percentage points less likely to be chosen when the minimum wage is \$15. This seems to conflict with the data presented in Figure 2. There, System A seemed to be about as likely to be chosen when the minimum wage is \$15 versus when it is \$7.25. The discrepancy arises because a minimum wage of \$7.25 is associated with a higher repugnance assessment. The negative effect of repugnance on the probability of choosing System A eliminates the disparity (see Appendix D for details of respondents' moral assessments of each system).

In the fourth column of Table 4, we examine the effect of providing information on the distribution of unemployment effects by race and gender relative to the composition of the labor force in the experiment's fictional "city." The estimates should be viewed as relative to "no information." The data suggests that choices are similar to the baseline (no information) if females and minorities are affected equally. On the other hand, informing our participants that minorities and females are disproportionately affected is associated with a 19.74 percentage point reduction in the probability of choosing System A. This is roughly equal to the effect of a four percentage point difference in unemployment. Note that the coefficient on the interaction of the unemployment variable and unequal race and gender indicator is positive but the effect is somewhat mechanical. That is, given many fewer people choose System A when they observe that there is a disproportionate impact on females and minorities, there are fewer people left to "react" to the difference in unemployment. For completeness, the fifth column presents the coefficient estimates from a specification that includes all of the indicators and interactions. The coefficient estimates remain similar to the estimates from the specifications in the columns two, three, and four.

Table 5: Introducing Demographic Controls: Linear Probability Model

	(1)	(2)	(3)	(4)
	P(Chose A)	P(Chose A)	P(Chose A)	P(Chose A)
$\Delta$ Unemployment = 2%	-10.65*** (1.185)	-10.60*** (1.187)	-10.53*** (1.193)	-10.59*** (1.210)
$\Delta$ Unemployment = 4%	-20.11*** (1.307)	-20.07*** (1.307)	-20.00*** (1.311)	-20.10*** (1.326)
$\Delta$ Unemployment = 6%	-27.27*** (1.367)	-27.23*** (1.368)	-27.16*** (1.370)	-27.24*** (1.389)
$\Delta$ Unemployment = 8%	-32.16*** (1.902)	-32.08*** (1.894)	-31.93*** (1.877)	-32.02*** (1.895)
$\Delta$ Repugnance	-0.440*** (0.0191)	-0.450*** (0.0191)	-0.411*** (0.0204)	-0.413*** (0.0208)
No. of Choices	8,492	8,492	8,492	8,288
No. of Respondents	2,123	2,123	2,123	2,072
Age, Race, Gender		Y	Y	Y
Politics, LF Status, Location			Y	Y
Income, Education				Y

\*\*\* Significant at the 1% level; \*\* Significant at the 5% level; \* Significant at the 10% level. Standard errors are clustered at the respondent level.

In Table 5, we examine how our estimates vary when we include controls for self-reported demographic information. In addition, to illustrate how the response to employment differences varies across the range of possible values, we include each possible difference in the unemployment rate as an indicator variable. The coefficients associated with the  $\Delta$  Unemployment terms should be interpreted as relative to  $\Delta$  Unemployment = 0%. The estimates reveal that the effect of additional unemployment has a diminishing effect on the probability of supporting a system with a minimum wage. Importantly, the point estimates on the  $\Delta$  Unemployment and  $\Delta$  Repugnance terms in each specification are statistically no different to one another, regardless of included controls. The stability of the estimates across the specifications is remarkable given the final specification in the table includes controls for age, race, gender, political affiliation, labor force status, state of residence, income level, and education level.

Table 6: Sensitivity Analysis: Linear Probability Model

	(1)	(2)	(3)	(4)	(5)
	P(Chose A)	P(Chose A)	P(Chose A)	P(Chose A)	P(Chose A)
$\Delta$ 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)	
No. of Choices	2,652	4,368	3,728	4,660	8,492
No. of Respondents	663	1,092	932	1,165	2,123
Omitted Group	Never Switchers	Extreme Politics	Religious	Non-College Educated	-
Fixed Effects	-	-	-	-	Yes

\*\*\* Significant at the 1% level; \*\* Significant at the 5% level; \* Significant at the 10% level. Estimates in the first four columns include standard errors clustered at the respondent level. The fifth column reports fixed effects estimates.

## 5 Robustness and Sensitivity

### 5.1 Sensitivity Analysis

In Table 6, we examine the robustness of our estimates to the omission of certain groups of respondents. These estimates also follow the non-parametric specification used in Table 5. In the first column, we remove the 68.6% of respondents ( $2,219 - 663 = 1,556$ ) who never switch choices. Given we are focusing on those who we have identified as sensitive to employment effects it is unsurprising that the estimates without the “never switchers” are more sensitive to disemployment. Appendix D contains a breakdown of the demographic characteristics of switchers and never switchers (we examine those who always choose System A and those who always choose System B separately).

In columns two, three, and four of Table 6 we eliminate those who report themselves to be extremely conservative or liberal, those who express a religious affiliation, and those who are non-college educated. The point estimates differ little relative to the comparable estimates in Table 5. The final column of Table 6 presents estimates when controlling for individual fixed

effects. These estimates are consistent with our other specifications, thereby alleviating concerns about the representativeness of our sample.

## 5.2 Heterogeneity of Preferences

In Table 7, we examine how choices are related to various characteristics of respondents. In each specification we include an indicator for the characteristic of interest and interact that indicator with the unemployment difference between Systems A and B in a given choice scenario (to reduce the number of coefficients reported, we return to a parametric specification similar to the first column of Table 4). The first column of Table 7 focuses on differences in the choices of males and females. The estimates suggest males are 5.66 percentage points more likely than females to choose System A. However, males are not more responsive to the size of the unemployment difference between the systems. That is, the difference is a level rather than a slope difference.

The second column suggests that older respondents are less likely to choose System A (2.37 percentage points) but the effect is not statistically different from zero. On the other hand, older respondents are also less responsive to the size of the unemployment difference between the systems. They are .75 percentage points more likely to choose a system with a minimum wage for each percentage point difference in unemployment, relative to younger respondents.

Column four compares White respondents to all others. They are more likely to choose System A but the effect is not statistically different from zero. Column five examines differences in choices as a function of responses to our moral dilemma question. The moral dilemma question is designed to identify “utilitarian” preferences by asking respondents if a fictional doctor should inject two substances, one of which is a vaccine and the other deadly poison, into two fictional patients. Both patients have contracted a deadly virus and will die regardless of the doctor’s actions. However, by injecting the substances, the doctor will learn which substance is the vaccine (the patient who gets the poison will die immediately). The doctor will then be able to replicate the vaccine and save many from contracting the deadly virus in the first place. Those who agree that the vaccine should be injected are supposedly utilitarian. We find that answers to that question are only mildly associated with choices.

Table 7: Heterogeneity Across Groups: Linear Probability Model

	(1)	(2)	(3)	(4)	(5)
	P(Chose A)	P(Chose A)	P(Chose A)	P(Chose A)	P(Chose A)
$\Delta$ Unemployment	-4.113*** (0.277)	-4.306*** (0.244)	-4.419*** (0.418)	-3.591*** (0.304)	-4.335*** (0.277)
$\Delta$ Repugnance	-0.449*** (0.0190)	-0.441*** (0.0191)	-0.440*** (0.0192)	-0.441*** (0.0191)	-0.403*** (0.0203)
Male	5.663*** (2.059)				
Unemployment $\times$ Male	0.0833 (0.391)				
Age >40		-2.366 (2.161)			
Unemployment $\times$ Age>40		0.751* (0.405)			
White			3.563 (2.488)		
Unemployment $\times$ White			0.483 (0.472)		
Inject Vaccine (Agree or Strongly Agree)				1.714 (2.090)	
Unemployment $\times$ Vaccine				-0.773* (0.396)	
Neither Democrat nor Republican					-8.467*** (2.608)
Republican					-14.56*** (2.586)
Unemployment $\times$ Neither					0.484 (0.498)
Unemployment $\times$ Republican					0.596 (0.455)
No. of Choices	8,492	8,492	8,492	8,492	8,492
No. of Respondents	2,123	2,123	2,123	2,123	2,123

\*\*\* Significant at the 1% level; \*\* Significant at the 5% level; \* Significant at the 10% level. Standard errors are clustered at the respondent level.

The final column of Table 7 reports how the choices of Republicans and those who report no political affiliation differ from Democrats. Relative to Democrats, those who report no political affiliation are 8.47 percentage points less likely to choose System A. Those who identify as Republicans are 14.56 percentage points less likely to choose System A. Again, the effect is a level difference rather than a slope difference with the coefficients on the interaction term being statistically no different to zero in each case.

## 6 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 (1) support for minimum wages is only mildly affected by large disemployment effects and (2) 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% of respondents always vote for and 27.1% always vote against a minimum wage. In Roth (2008), he 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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## **A Experiment/Survey Document**

### **A.1 Sample Survey**

This appendix section contains a complete survey, beginning on the following page. The survey remains available to complete at [http://louisville.az1.qualtrics.com/jfe/form/SV\\_39Keupyg3Vnqt49](http://louisville.az1.qualtrics.com/jfe/form/SV_39Keupyg3Vnqt49).

English ▼

## Minimum Wages, Morality, and Efficiency: A choice Experiment

September, 2018

Dear Survey Participant:

You are invited to participate in a research study about attitudes toward minimum wages. This study is conducted by Dr. Stephan Gohmann, Dr. Keith Teltser, Dr. Conor Lennon, and Dr. Jose Fernandez of the University of Louisville. There are no known risks for your participation in this research study. The information collected may not benefit you directly. The information learned in this study may be helpful to others. The information you provide will be used to help us understand the nature of public preferences towards minimum wages. Your completed survey will be stored at the University of Louisville. The survey will take approximately 10 to 12 minutes to complete. Payment will be \$1 for completing the survey. You will also be asked if you would be willing to be re-contacted for a similar follow-up survey. If you are re-contacted, you will also be compensated \$1 for that follow-up survey.

Individuals from the Department of Economics at the University of Louisville, the Institutional Review Board (IRB), the Human Subjects Protection Program Office (HSPPO), and other regulatory agencies may inspect these records. In all other respects, however, the data will be held in confidence to the extent permitted by law. Should the data be published, your identity will not be disclosed.

Taking part in this study is voluntary. By answering survey questions you agree to take part in this research study. You do not have to answer any questions that make you uncomfortable. You may choose not to take part at all. If you decide to be in this study you may stop taking part at any time. If you decide not to be in this study or if you stop taking part at any time, you will not lose any benefits for which you may qualify.

If you have any questions, concerns, or complaints about the research study, please contact: Dr. Conor Lennon (phone: (502) 852-7773; e-mail: conor.lennon@louisville.edu) or Dr. Jose Fernandez (phone: (502) 852-4861; e-mail: jose.fernandez@louisville.edu).

If you have any questions about your rights as a research subject, you may call the Human Subjects Protection Program Office at (502) 852-5188. You can discuss any questions about your rights as a research subject, in private, with a member of the Institutional Review Board (IRB). You may also call this number if you have other questions about the research, and you cannot reach the research staff, or want to talk to someone else. The IRB is an independent committee made up of people from the University community, staff of the institutions, as well as people from the community not connected with these institutions. The IRB has reviewed this research study.

If you have concerns or complaints about the research or research staff and you do not wish to give your name, you may call 1-877-852-1167. This is a 24 hour hot line answered by people who do not work at the University of Louisville.

Please note that this survey will be best displayed on a laptop or desktop computer. Some features may be less compatible for use on a mobile device. If

you do not wish to participate in this study, please close this window now and your session will end.

Sincerely,

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Dr. Conor J. Lennon

Dr. Jose M. Fernandez

- I consent, begin the study
- I do not consent, I do not wish to participate, please delete all record of my involvement.

>>

You will be able to continue with the survey after reading the brief text below.

The Fair Labor Standards Act explains that, as of June 2018, the federal minimum wage in the United States is \$7.25 per hour of work. It is a federal crime to employ workers at any hourly wage below the federal minimum wage. Individual states are free to set a higher minimum wage, but the federal rate is the lowest possible hourly wage (there are some exceptions such as the hospitality industry, where tipping is customary).

In March of 2018, the Bureau of Labor Statistics reported that 1.8 million hourly workers, roughly 2.3 percent of all hourly workers, were paid no more than the federal minimum wage. Of those 1.8 million workers;

- 49 percent were between 16 and 24 years old.
- 65 percent work part-time.
- 53 percent have a high school diploma or less.
- 17 percent are Black, and 17 percent are Hispanic or Latino.
- 58 percent are female.

In recent years, there has been discussion about raising the federal minimum wage. Those in favor of an increase see the minimum wage as a potential way to reduce poverty and inequality. Opponents note that increasing the minimum wage could lead to unemployment because employers will not be able to afford to employ as many workers.

In this study, you may be asked to consider the minimum wage compared to some alternative policy options. We will refer to your options as System A and System B in each scenario. The order of presentation is randomly chosen. For that reason, you may be asked to consider System B prior to considering System A. You will be asked to express your opinion on the ethics of these systems, including if you feel they are fair (to both workers and their potential employers), dignified, or exploitative. You will then be given some potential associated employment outcomes to consider and asked to "vote" on a preferred option.

**Based on the findings of this study, we will prepare and submit a summary of our findings (in the form of an op-ed) to major national newspapers including the New York Times, the Washington Post, the Chicago Tribune, and the Los Angeles Times. We may also be asked to speak about our findings on television, radio, or at public speaking events. In order to help us explain how American people view the minimum wage, we ask that you commit to answering our study's questions honestly.**

Note that all of the answers that you provide will remain anonymous and treated with absolute confidentiality. The researchers do not know your identity, and they will never be able to match your name with the answers that you provide.

**Do you commit to carefully reading and providing your thoughtful and honest answers to the questions in this survey?**

- I commit to answering the questions in this study honestly and truthfully.**
- I do not commit to answering the questions in this study honestly and truthfully, please remove me from this study.**

English ▼

System A: This system features a minimum wage of \$10.10 per hour worked. This minimum applies in all 50 US states and employers must pay their employees at least \$10.10 per hour. Any employer who pays any worker a wage below \$10.10 would be guilty of a federal crime under the Fair Labor Standards Act.

Please consider the following statements and indicate your agreement or disagreement with them by moving the appropriate slider.

Note: the definition of underlined words can be viewed by hovering over them with the mouse cursor.

This system exploits workers

Strongly disagree 0      Somewhat disagree 25      Neither agree nor disagree 50      Somewhat agree 75      Strongly agree 100



This system is unfair to workers



Strongly disagree 0      Somewhat disagree 25      Neither agree nor disagree 50      Somewhat agree 75      Strongly agree 100



This system is unfair to employers

Strongly disagree 0      Somewhat disagree 25      Neither agree nor disagree 50      Somewhat agree 75      Strongly agree 100



This system does not respect human dignity

Strongly disagree 0      Somewhat disagree 25      Neither agree nor disagree 50      Somewhat agree 75      Strongly agree 100





English ▼

System B: the federal government abolishes all minimum wages. For the purposes of this survey, please assume that this law would apply equally in all 50 US states and would override existing laws in all states. That is, there would be no minimum wage law anywhere in the United States. Workers and employers would negotiate hourly wages on a case-by-case and person-by-person basis. All wage agreements that workers and employers agree to are completely legal.

Please consider the following statements and indicate your agreement or disagreement with them by moving the appropriate slider.

Note: the definition of underlined words can be viewed by hovering over them with the mouse cursor.

This system exploits workers

Strongly disagree 0      Somewhat disagree 25      Neither agree nor disagree 50      Somewhat agree 75      Strongly agree 100



This system is unfair to workers

Strongly disagree 0      Somewhat disagree 25      Neither agree nor disagree 50      Somewhat agree 75      Strongly agree 100



This system is unfair to employers

Strongly disagree 0      Somewhat disagree 25      Neither agree nor disagree 50      Somewhat agree 75      Strongly agree 100



This system does not respect human dignity.

Strongly disagree 0      Somewhat disagree 25      Neither agree nor disagree 50      Somewhat agree 75      Strongly agree 100





In this part of the survey, you will consider some potential consequences of the systems you have rated. You will be presented with three choice scenarios. This is the first scenario.

For the purposes of the survey consider the potential effect of the alternative systems on a small U.S. city. The city contains 100,000 adults who are willing and able to work. Of these 100,000, 55,000 are male and 45,000 are female. In addition, 60,000 are White, 20,000 are Black, and 20,000 are Hispanic/Latino.

The table below summarizes what happens to employment in the city under each alternative system.

<b>System A</b>		<b>System B</b>
Minimum wage of \$10.10  <b>Number of people <u>unable</u> to find work: 10,000</b>		Minimum Wage Eliminated  <b>Number of people <u>unable</u> to find work: 8,000</b>
<b>For System A, among the workers who are unable to find work, 40 percent are members of a minority community (they are Black or Hispanic) and 45 percent are female.</b>		

**For System B, among the workers who are unable to find work, 40 percent are members of a minority community and 45 percent are female.**

Please indicate the system you would like to see implemented by choosing one of the options below. Please think of your selection as the expression of a "vote."

System A

System B

On a scale of 0 to 100, how would you rate the overall desirability of each system?

Extremely  
undesirable  
0

Somewhat  
undesirable  
25

Neither desirable  
nor undesirable  
50

Somewhat  
desirable  
75

Extremely  
desirable  
100

System A



System B



This is the second scenario.

Again, consider the potential effect of the alternative systems on a small U.S. city. The city contains 100,000 adults who are willing and able to work. Of these 100,000, 55,000 are male and 45,000 are female. In addition, 60,000 are White, 20,000 are Black, and 20,000 are Hispanic/Latino.

The table below summarizes what happens to employment in the city under each system.

<b>System A</b>		<b>System B</b>
<p>Minimum wage of \$10.10</p> <p><b>Number of people <u>unable</u> to find work: 10,000</b></p>		<p>Minimum Wage Eliminated</p> <p><b>Number of people <u>unable</u> to find work: 6,000</b></p>
<p><b>For System A, among the workers who are unable to find work, 40 percent are members of a minority community (they are Black or Hispanic) and 45 percent are female.</b></p> <p><b>For System B, among the workers who are unable to find work, 40 percent are members of a minority community and 45 percent are</b></p>		



female.

Please indicate the system you would like to see implemented by choosing one of the options below. Please think of your selection as the expression of a "vote."

System A

System B

On a scale of 0 to 100, how would you rate the overall desirability of each system?

Extremely  
undesirable  
0

Somewhat  
undesirable  
25

Neither desirable  
nor undesirable  
50

Somewhat  
desirable  
75

Extremely  
desirable  
100

System A

0



System B

0



This is the third scenario.

For the purposes of the survey consider the potential effect of the alternative systems on a small U.S. city. The city contains 100,000 adults who are willing and able to work. Of these 100,000 people, 55,000 are male and 45,000 are female. In addition, 60,000 are White, 20,000 are Black, and 20,000 are Hispanic/Latino.

The table below summarizes what happens to employment in the city under each system.

<b>System A</b>		<b>System B</b>
<p>Minimum wage of \$10.10</p> <p><b>Number of people <u>unable</u> to find work: 10,000</b></p>		<p>Minimum Wage Eliminated</p> <p><b>Number of people <u>unable</u> to find work: 4,000</b></p>
<p><b>For System A, among the workers who are unable to find work, 40 percent are members of a minority community (they are Black or Hispanic) and 45 percent are female.</b></p> <p><b>For System B, among the workers who are unable to find work, 40 percent are members of a minority community and 45 percent are</b></p>		

female.

Please indicate the system you would like to see implemented by choosing one of the options below. Please think of your selection as the expression of a "vote."

System A

System B

On a scale of 0 to 100, how would you rate the overall desirability of each system?

Extremely  
undesirable  
0

Somewhat  
undesirable  
25

Neither desirable  
nor undesirable  
50

Somewhat  
desirable  
75

Extremely  
desirable  
100

System A



System B



This is the third scenario.

For the purposes of the survey consider the potential effect of the alternative systems on a small U.S. city. The city contains 100,000 adults who are willing and able to work. Of these 100,000 people, 55,000 are male and 45,000 are female. In addition, 60,000 are White, 20,000 are Black, and 20,000 are Hispanic/Latino.

The table below summarizes what happens to employment in the city under each system.

<b>System A</b>		<b>System B</b>
<p>Minimum wage of \$10.10</p> <p><b>Number of people <u>unable</u> to find work: 10,000</b></p>		<p>Minimum Wage Eliminated</p> <p><b>Number of people <u>unable</u> to find work: 2,000</b></p>
<p><b>For System A, among the workers who are unable to find work, 40 percent are members of a minority community (they are Black or Hispanic) and 45 percent are female.</b></p> <p><b>For System B, among the workers who are unable to find work, 40 percent are members of a minority community and 45 percent are</b></p>		

female.

Please indicate the system you would like to see implemented by choosing one of the options below. Please think of your selection as the expression of a "vote."

System A

System B

On a scale of 0 to 100, how would you rate the overall desirability of each system?

Extremely  
undesirable  
0

Somewhat  
undesirable  
25

Neither desirable  
nor undesirable  
50

Somewhat  
desirable  
75

Extremely  
desirable  
100

System A



System B



English ▼

The following question asks you to recall the choices you made.

Please check all of the below sentences that apply to your choices, as truthfully and honestly as possible.

- I chose System A (a minimum wage of \$10.10) in at least one choice opportunity
- I chose System B (no minimum wage) in at least one choice opportunity

>>

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English ▼

Again, please consider the choices you made.

Please check all of the below sentences that apply to your choices, as truthfully and honestly as possible.

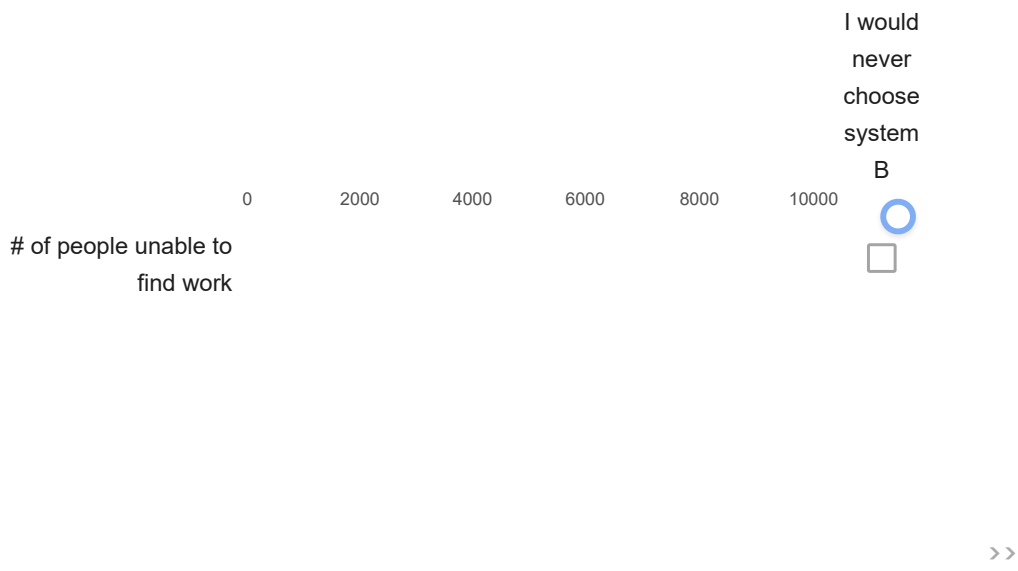
- I would have never chosen System A (a minimum wage of \$10.10) regardless of the number of workers who were able to find work
- I would have never chosen System B (no minimum wage) regardless of the number of workers who were able to find work
- None of the above

>>

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English ▾

Suppose **10,000** people were unable to find work under System A (minimum wage of \$10.10). Please use the slider below to select a numerical answer to complete the missing part of the following statement: I would be willing to choose System B (no minimum wage) instead of System A if the number of people unable to find work was less than \_\_\_\_\_.





English ▼

As mentioned earlier, we will share the findings of this study with the general public and policy makers by sending them to major national newspapers for publication as an op-ed.

To what extent do you believe that policy makers **will** take your opinion about the minimum wage into consideration?

- Not at all
- Very little
- Little
- Somewhat
- Very much

To what extent do you believe that policy makers **should** take your opinion into consideration?

- Not at all
- Very little
- Little
- Somewhat
- Very much

English ▼

In this section of the survey we ask that you provide some socio-demographic information.

**Thank you for helping us collect accurate information.**

What is your age?

Are you...

- Male
- Female

In which state do you currently reside?

Which statement best describes your current employment status?

- Working (paid employee)
- Working (self-employed)
- Not working (disabled)
- Not working (temporary layoff from a job)
- Not working (retired)
- Not working (looking for work)
- Not working (other)

- Prefer not to answer

What is the highest level of school you have completed or the highest degree you have received?

- Less than high school degree
- High school graduate (high school diploma or equivalent including GED)
- Some college but no degree
- Associate degree in college (2-year)
- Bachelor's degree in college (4-year)
- Master's degree
- Doctoral degree

Professional degree (JD, MD)

Information about income is very important to understand. Please indicate the answer that includes your entire household income in 2017 before taxes.

- Less than \$10,000
- \$10,000 to \$19,999
- \$20,000 to \$29,999
- \$30,000 to \$39,999
- \$40,000 to \$49,999
- \$50,000 to \$59,999
- \$60,000 to \$69,999
- \$70,000 to \$79,999
- \$80,000 to \$89,999
- \$90,000 to \$99,999
- \$100,000 or more
- Prefer not to answer

To which racial group do you most identify?

White

Asian



- My affiliation is not listed
- No religious affiliation

Have you donated money to or volunteered for a non-profit or charitable organization in the past 2 years?

- Yes
- No

Do you think of yourself as closer to the Republican or Democratic Party?

- Republican
- Democratic
- Neither

Have you ever worked in a position where your hourly wage was equal to the minimum wage?

- Yes, my current job pays minimum wage.
- Yes, a previous job paid minimum wage.
- No

Is any member of your immediate family currently working in a position that pays minimum wage?

- Yes
- No
- Unsure

>>

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English

Please indicate your level of agreement with the following sentence:

**Some aspects of human life are sacred and should never be violated regardless of the possible material gains.**

- Strongly disagree    Somewhat disagree    Neither agree nor disagree    Somewhat agree    Strongly agree

Please indicate your level of agreement with the following sentence:

**Allowing people to experience suffering in order to maintain an ethical principle is morally wrong.**

- Strongly disagree    Somewhat disagree    Neither agree nor disagree    Somewhat agree    Strongly agree



Please indicate your level of agreement with the following sentence:

**People should have the freedom to do things that offend others' morals so long as no one is directly physically or financially harmed.**

- Strongly disagree    Somewhat disagree    Neither agree nor disagree    Somewhat agree    Strongly agree

Consider the following scenario:

Suppose a viral epidemic is killing millions of people around the world. The virus is fatal in every case: once someone contracts the virus they cannot be saved but the virus takes several days to kill a person. A doctor has developed two substances. One is a vaccine and the other is a deadly poison. Due to a clerical error, the doctor is not sure which is which. The doctor is taking care of two patients who have the fatal virus.

The only way to identify the vaccine is to inject each patient with one of the two substances. If the doctor injects the substances one of the patients will die immediately from the poison. However, because the doctor will know which substance is the vaccine, millions of other lives will be saved.

Please indicate your level of agreement with the following sentence:

**The doctor should inject the substances into the patients.**

- Strongly disagree    Somewhat disagree    Neither agree nor disagree    Somewhat agree    Strongly agree

>>

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English ▼

We are planning to contact some of the respondents to this survey sometime in the next 4 to 6 weeks to complete a similar type of survey. If you are interested in being contacted, please indicate below. If you are recontacted and choose to participate, your participation will be compensated.

- Yes, I am willing to be contacted again       No, I am not willing to be contacted again.

If you have any feedback on our survey (typos, errors, general comments, and so on) please let us know. You can type your comments into the text box below.

>>

Thank you for completing our survey. Your response has been recorded.

Your MTurk completion code is: 1234567890

Please copy and paste the completion code into the space provided in the mTurk HIT to ensure your prompt payment.

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## **B Practical Experimental Details**

This appendix describes describes participant recruitment, pretesting, payments and earnings, time taken, along with the results of various checks on participants' attention.

### **B.1 Recruitment**

Participants are recruited via Amazon's mTurk platform. On this platform, "requesters" can pay people to perform relatively short human intelligence tasks (HITs). These tasks include data entry, audio transcription, and so on. In addition, the platform is used for marketing surveys and experiments.

### **B.2 Pre-testing**

We completed a round of pretesting in August of 2018. To be precise, we did two pretests, one involved gathering and paying for 50 responses to check our survey instrument was working as intended. Then, we gathered 250 responses to estimate the effect size of interest and to understand if the parameters would generate enough variation in the data. None of the data gathered in the pretest phase is presented in the main body of the paper. The pretest version of the survey allowed the unemployment rate to vary randomly in System A between 4%, 6%, 8% and 10%. For System B, the rate varied between 4% and 6% (presented to participants as X out of 100,000 who want to work are unable to find a job). We presented participants with three choice scenarios where employment effects were drawn randomly. From this, we found that in order to overcome the mean repugnance between System A and System B, respondents needed about a difference in employment of about 5,000 workers (that is, a 5 percentage point difference). With this setup, about 15% of respondents in the pretest faced three choice scenarios where all three were basically redundant - either the employment in System B was the same or worse than System A. That is, due to the randomization they never observed a scenario where System A was "worse" than System B.<sup>B.1</sup> In addition, many experimental participants observed three situations where System B was significantly more efficient than System A. To avoid these

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<sup>B.1</sup> There are eight possible pairings, unemployment in System B was the same or worse than System A in three of these eight pairings.

extremes, we altered the survey design to set System A's unemployment level at either 8% (8,000 out of 100,000 workers) or 10% upon entering the survey. We then asked respondents to compare System A to System B in four scenarios. In the first scenario, the unemployment in System B is 8%, in the second it is 6%, in the third it is 4%, and 2% in the final scenario. These changes ensured each respondent observes a scenario where the employment difference between System A and System B is small and one where it is not.

### **B.3 Earnings and Time Taken**

Each respondent was paid \$1. The average respondent took just over 12 minutes to complete the survey. The median respondent took 10 and a half minutes. The average time is inflated significantly by outliers in the right tail of the "time taken" distribution. For example, one respondent took over 2 hours and 40 minutes to complete the survey. It is likely that this person did not spend that time focused on the survey. Indeed, given 25% of reliable survey respondents took less than 8 minutes to do the survey, we suspect that the time taken to do the survey is artificially inflated for reasons that are unrelated to the survey's length (such as working on other short mTurk tasks or due to interruptions from phone calls, social media, bathroom breaks, and so on). Finally, dropping those above the 95th percentile of the time distribution (a survey completion time of about 26 minutes) brings the median time to completion to 10 minutes and 7 seconds and the mean to 10 minutes and 55 seconds.

### **B.4 Attention Checks**

We built several attention checks into the survey. We consider two of these to be relatively strong and the rest to be somewhat weaker. The stronger checks ask respondents (1) to recall if they ever chose each system and (2) if they would never choose either of the systems. They fail the first check if they cannot accurately recall if they chose System A or System B across the various choice scenarios. They fail the second check if they claim they would never choose one of the systems but actually did choose one of those systems in at least one choice scenario. In the estimates in the paper, we eliminate all those who fails both of these checks. Therefore

Table B.1: Checks on Attention and Reliability

Reliability Check	Description	Pass	Fail
1	Cannot recall own choices	2,035 91.7%	184 8.3%
2	Claims they would never choose a system which they did choose	2,033 91.6%	186 8.4%
3	Choices Correspond to Desirability Rating of each system	1,656 74.6%	563 25.4%
4	Suggested they would choose System B for some level of employment but did not do so in the experiment	2,135 96.2%	84 3.8%
5	Choices reflect monotonic preferences	2,139 96.4%	80 3.6%

The table reports how many respondents passed or failed five checks on attention, response reliability, and consistency. Statistics are reported for 2,219 respondents. This total excludes those who failed both the first and second reliability checks listed above plus those who appear to have taken the survey more than once based on their IP address.

Table B.1 reports the “pass” and “fail” rate for each attention check for 2,219 responses (also, see Table 2 in the body of the paper).

The stronger checks on attention are presented first in the table. Among those who did not fail both of those reliability checks, there remains a small minority who failed one of them. However we keep these responses in our data because many of those who fail one of the strong checks do not fail any of the other weaker three tests. In any case, the estimates in the paper are almost identical if we exclude those who fail just one of those strong checks. Indeed, including those who fail both of our stronger checks does little to alter the estimates.

The third reliability check in the table examines if participants chose the system they assessed to be most “desirable.” Given the loaded and subjective meaning of that term, we do not consider “failing” this check to be a major concern. A person could consider System A as “most desirable” but choose System B due to its employment consequences.

Reliability check number four examines respondents' answers to our "switching" question. In the survey, towards the end, our "switching" question asks respondents to choose (on a sliding scale) the level of unemployment that would be required to get them to choose System A (the level of unemployment for System A is fixed for a given respondent but varied across respondents). A respondent fails this check if their answer implies that they should have chose System B in at least one choice scenario but did not; 96.2% of respondents passed this "test."

The fifth reliability check examines inconsistent preferences. There are four binary choices for each participant, leading to 16 combinations of choices. Eight of these 16 potential routes through the experiment reflect consistent preferences in the sense that the participant always answers the same choice in each scenario or switches from System A or B to the other, only once. A respondent therefore fails this check if their responses do not respect monotonicity. For instance, a respondent who chooses A, then B, then A again is potentially unreliable. The data shows that 96.4% of respondents' choice patterns respect monotonicity.



Table C.1: Logit Estimates

	(1)	(2)	(3)	(4)	(5)	(6)
	P(Chose A)	P(Chose A)	P(Chose A)	P(Chose A)	P(Chose A)	P(Chose A)
Difference in Unemployment Rate	-0.0402*** (0.00188)	-0.0426*** (0.00162)	-0.0400*** (0.00186)	-0.0403*** (0.00185)	-0.0425*** (0.00160)	
Difference in Repugnance	-0.00431*** (0.000180)	-0.00431*** (0.000179)	-0.00456*** (0.000188)	-0.00434*** (0.000178)	-0.00461*** (0.000186)	-0.00431*** (0.000180)
Difference in Unemployment Rate = 2%						-0.106*** (0.0118)
Difference in Unemployment Rate = 4%						-0.200*** (0.0130)
Difference in Unemployment Rate = 6%						-0.272*** (0.0136)
Difference in Unemployment Rate = 8%						-0.322*** (0.0189)
System A = 10,000		0.0298* (0.0171)			0.0312* (0.0168)	
Min Wage Observed = \$10.10			-0.0301 (0.0240)		-0.0367 (0.0227)	
Min Wage Observed = \$15			-0.112*** (0.0241)		-0.112*** (0.0230)	
Equal Race and Gender Effects				0.0102 (0.0224)	0.0141 (0.0221)	
Unequal Race and Gender Effects				-0.118*** (0.0190)	-0.115*** (0.0189)	
No. of Choices	8,492	8,492	8,492	8,492	8,492	8,492
No. of Respondents	2,123	2,123	2,123	2,123	2,123	2,123

\*\*\* Significant at the 1% level; \*\* Significant at the 5% level; \* Significant at the 10% level. Standard errors are clustered at the respondent level.

## C Logit Estimates

A linear probability model allows us to easily present our data and findings. For completeness, Table C.1 reports post-estimation marginal effects from a binomial logit estimation. In the estimating equation, the variables are the same as in Section 4 but  $\varepsilon_{ic}$  takes on a logit distribution. Note that the outcome variable is 0 or 1 (where choosing System A = 1). In each column, we re-estimate the corresponding specification from Table 4 in the body of the paper but do not report the marginal effects for the interaction terms.

The estimates are similar to Table 4 but they have to be multiplied by 100 to be interpreted as percentage point changes. That is, in the first column, a one percentage point difference in unemployment between the two systems is associated with a 4.02 percentage point reduction in the probability of choosing System A.

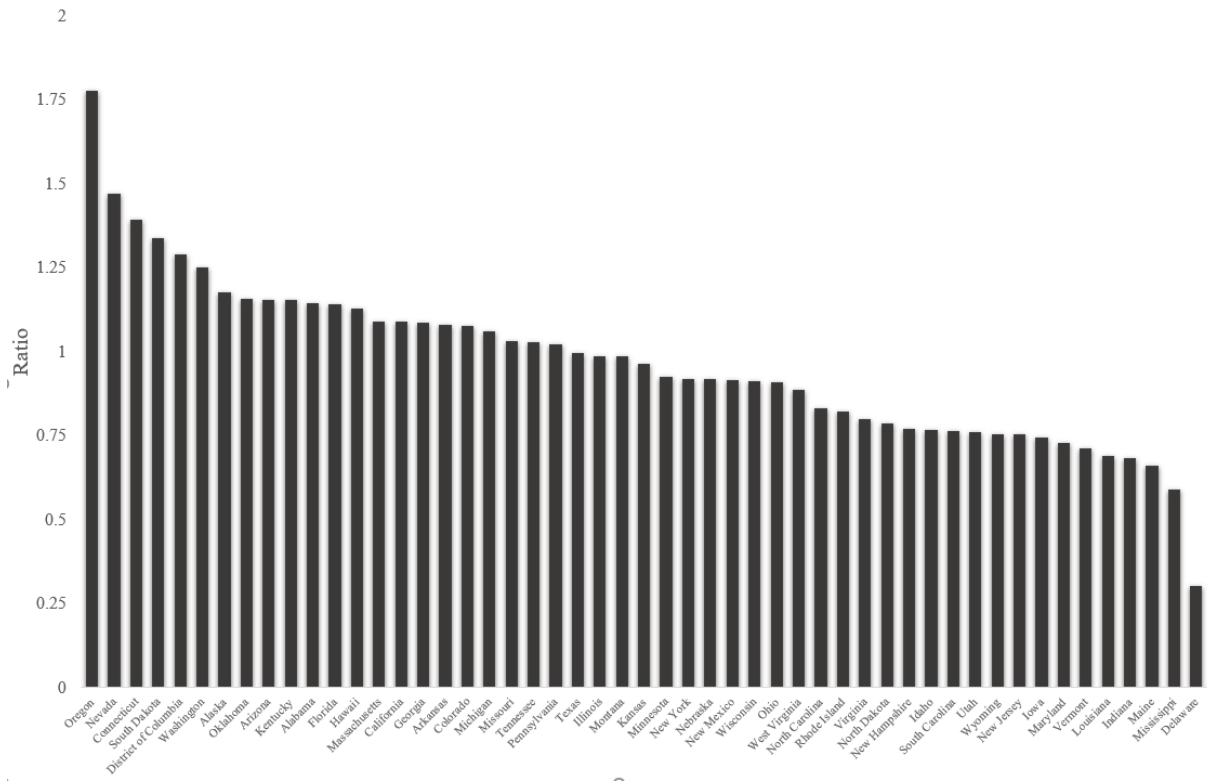


Figure D.1: Ratio of Representation: Experiment Participants vs. U.S. Population

## D Miscellaneous Additional Sample Characteristics

### D.1 Geographic Representation

Figure D.1 illustrates the ratio between the percent of all responses from a given state in our sample relative to that state’s share of the U.S. population in 2017 as reported by the Census Bureau. Most states are reasonably represented but states such as Oregon and Delaware are over- and under-represented, respectively. Note that our main findings are robust to excluding any state which is more than 20% over- or under-represented (that is, omitting responses from any state with a 1.2 to 1 ratio of response share to population share and/or omitting those with a .8 to 1 ratio).

Table D.1: Detailed Repugnance Ratings

	System A				System B
	\$7.25	\$10.10	\$15	All	No Min Wage
<b>Min Wage</b>					
<b>Count</b>	446	880	893	2,219	2,219
<b>Exploits Workers</b>	49.4	26.8	16.6	27.2	75.6
<b>Unfair to Workers</b>	50.0	26.6	18.1	27.9	74.4
<b>Unfair to Employers</b>	24.9	33.2	48.5	37.6	25.1
<b>Fails to Respect Human Dignity</b>	48.3	26.5	19.3	28.0	67.8
<b>Conflicts with Personal Values</b>	48.8	30.4	30.7	34.2	69.5

	System A				System B			
	Democrat	Republican	Neither	All	Democrat	Republican	Neither	All
<b>Political Affiliation</b>								
<b>Count</b>	1,095	614	510	2,219	1,095	614	510	2,219
<b>Exploits Workers</b>	26.1	27.4	29.4	27.2	82.6	64.8	73.4	75.6
<b>Unfair to Workers</b>	26.6	28.1	30.5	27.9	83.0	62.4	74.9	74.4
<b>Unfair to Employers</b>	29.5	52.0	37.8	37.6	23.0	28.8	25.0	25.1
<b>Fails to Respect Human Dignity</b>	25.9	29.9	30.1	28.0	76.7	54.6	64.6	67.8
<b>Conflicts with Personal Values</b>	28.4	43.5	35.4	34.2	78.8	56.3	65.4	69.5

Table reports breakdown of repugnance by minimum wage observed and reported political affiliation.

## D.2 Detailed Repugnance Ratings

Table D.1 reports respondents' moral assessments of each system. First, it presents these assessments for System A (minimum wage) as a function of the minimum wage observed. Notice that the assessment of each system is responsive to the minimum wage observed with the system with a \$15 minimum being markedly less problematic in four of the five moral dimensions. The exception to the pattern is in how higher minimum wages are unfair to employers. These System A assessments should be compared to the assessments for System B (no minimum wage). Even a system with a \$7.25 minimum wage is viewed very differently to one with no minimum wage.

We then present the moral assessment of each system as a function of reported political affiliation. Respondents who see themselves as closer to the Democratic Party drive a lot of the difference in assessments between the two systems. However, Republicans also tend to report that System B (relative to System A) is more exploitative, unfair to workers, disrespectful to human dignity, and is in conflict with their personal values. The responses for those who claim to be affiliated with neither party tend to lie between the score for the typical Democrat and Republican respondent. This pattern provides additional confidence in the reliability of respondents' answers to the survey's demographic questions.

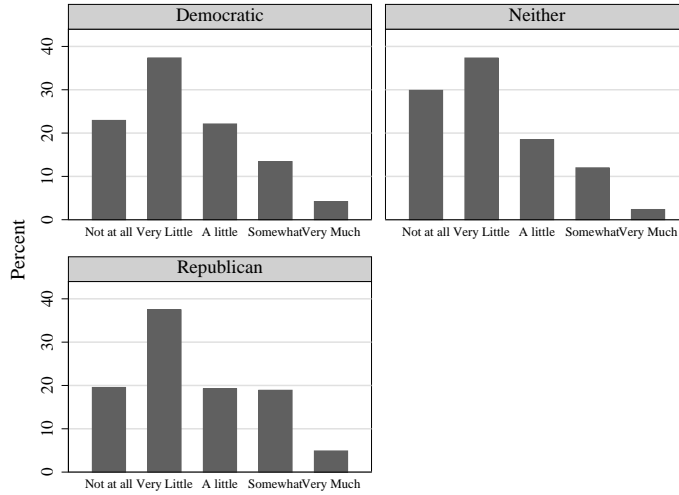
### **D.3 Do People Believe their Responses Matter?**

In the third stage of the experiment, to examine the degree to which participants believe their responses matter, we remind participants of our intention to heavily publicize our findings and ask respondents if policy makers *will* be interested in our findings and if they *should* be interested in these findings. Figure D.2 provides the breakdown of respondents answers to those questions. It is clear that most respondents do not believe their voice will be heard. However, over 83% of respondents feel that their voice *should* be heard. These findings provide further confidence in the reliability and trustworthiness of our survey responses.

### **D.4 Characteristics of Switchers and non-Switchers**

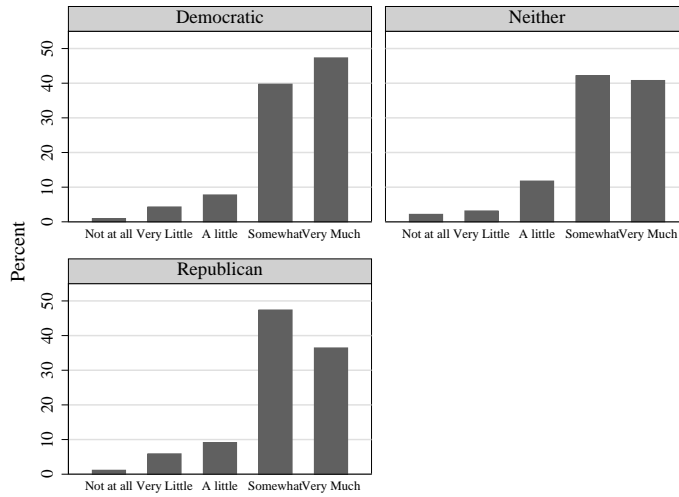
Table D.2 lays out the demographic characteristics of the sample for those who always chose System A, those who switched, and those who always chose System B. It is comparable to Table 3 in the main body of the paper, which lays out the demographic characteristics of the sample by political affiliation. The first thing to notice is that the division into the three categories “compresses” the data. That is, relative to the differences as a function of political affiliation in Table 3 in the paper, the differences observed across the groups as a function of their choices, is “smaller.” For example, the self-rated political “score” (on a scale of 1 to 5, where 1 is most liberal) is 1.9 for Democrats and 4.0 for Republicans in Table 3. In contrast, these numbers are 2.4 for those who always choose System A and 3.2 for those who always choose System B.

### Policyholders Will Consider these Findings



(a) Policyholders Will Consider these Findings

### Policyholders Should Consider these Findings



(b) Policyholders Should Consider these Findings

Figure D.2: Beliefs on the Effect of Study on Policyholders

A notable exception to that pattern is in labor market experience. Those who always chose System B tend to report earning more income and have less experience with minimum wage jobs. It is true that those who always chose System B are more likely to report a religious affiliation but the difference between the groups is less pronounced than the difference across political affiliation. A similar pattern applies to self-reported race.

Table D.2: Selected Demographic Characteristics of Experiment Participants

		Always A	Switcher	Always B	All
<b>Count</b>		921	696	602	2,219
<b>Demographics</b>	Age	37.6	35.7	37.4	36.9
	Std. Dev.	12.1	11.3	11.7	11.8
	% Male	49.6%	45.5%	50.2%	48.5%
	White	78.6%	72.4%	73.4%	75.3%
	Black	8.6%	11.8%	9.0%	9.7%
	Other	12.8 %	15.8%	17.6%	15.0%
<b>Politics</b>	Liberal-Conservative Scale	2.4	2.8	3.2	2.7
		Note: 1= Strongly Liberal and 5 = Strong Conservative			
<b>Self-Reported Income</b>	<\$20,000	13.5%	12.8%	10.0%	12.3%
	\$20,000 to \$60,000	49.8%	49.6%	46.4%	48.8%
	\$60,000 to \$100,000	25.9%	25.3%	25.3%	25.6%
	\$100,000 or more	10.8%	12.4%	18.2 %	13.3%
<b>Education</b>	Less than High School	0.3%	0.6%	0.5%	0.5%
	High School or Some College	43.2%	46.8%	44.7 %	44.8%
	Bachelor’s Degree	40.3%	37.6%	39.0%	39.1%
	Graduate Degree	16.2%	14.9%	15.7%	15.7%
<b>Religion</b>	Christian	43.5%	50.3%	54.3%	48.6%
	Other	6.3%	8.5%	8.1%	7.8%
	Atheist/Agnostic/No Affiliation	50.2%	41.2%	37.6%	43.7%
<b>Morality Questions</b>	Some Values are Sacred	4.5	4.4	4.3	4.4
	Suffering for an Ethical Principle is Wrong	3.8	3.8	3.5	3.7
	Freedom from Interference	3.6	3.4	3.5	3.5
	Vaccine Injection	3.4	3.5	3.5	3.5
		Note: 1= Strongly Disagree and 5 = Strongly Agree			
<b>Min Wage Experience</b>	Currently Works for Min Wage	11.29%	8.05%	6.3%	8.9%
	Ever Worked for Min Wage	69.1%	69.5%	68.8%	69.1%
	Never Worked for Min Wage	19.7%	22.4%	24.9%	22.0%
<b>Location</b>	Number of States (incl PR and DC)	51	52	52	52
	Most Common	CA (13.1%)	CA (13.3%)	CA (13.3%)	CA (13.2%)
<b>Repugnance</b>	Average for System A	27.9	25.7	35.7	29.3
	Average for System B	85.7	72.9	50.3	72.1

Note: Data refers only to the 2,219 valid responses. See Table 2 and Appendix B for more on what is considered a valid response.

## **E Relationship to Elias, Lacetera, and Macis's work on Payments for Kidneys**

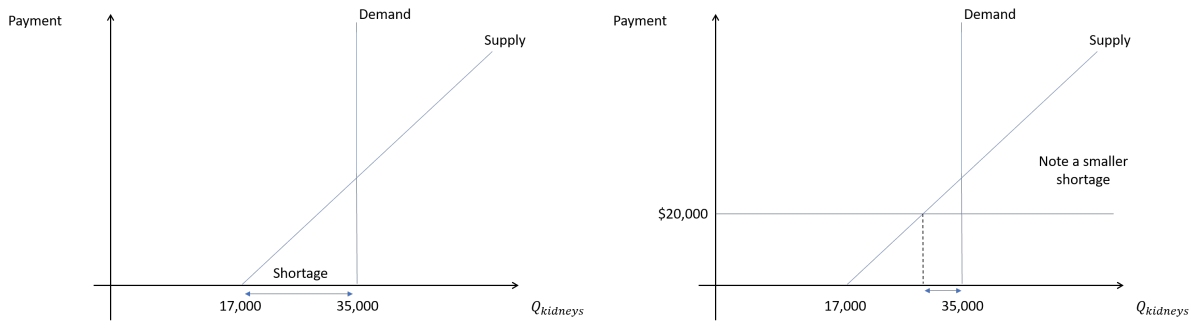
Our experimental design is similar to Elias et al.'s approach to examine public support for payments to kidney donors. Elias et al.'s experiment asked participants to consider the three systems depicted in Figure E.1. Their baseline system (System A) is depicted in Figure E.1a. In System A, payments for kidneys are precluded. They then offer experimental subjects two ways to move away from that baseline - private or public payments for kidneys. Private payments allow for an upward movement along the kidney supply curve (Figure E.1b). Public payments also enforce a \$0 payment (from recipients) but cause a rightward shift in supply due to the public subsidy.

These systems are described to experiment participants in language that is easy to understand without training in economics. They then ask participants to assess the systems on six dimensions of repugnance. This includes whether or not the system is coercive, exploitative, fair to donors, fair to recipients, against human dignity, and against their personal values. They then present participants with triplets of information on the ability of each system to procure kidneys.

Elias et al. find that respondents are willing to tolerate payments to kidney donors for relatively mild increases in number of kidneys procured, particularly when the payment is made from a third party rather than the payment coming from the recipient. That is, people seem to only find payments from recipient to donor repugnant, and not payments *per se*.

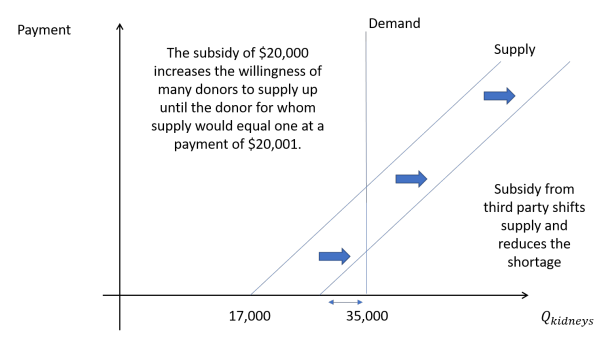
Elias et al.'s task is simplified by the reasonable assumption that the quantity demanded of kidneys is fixed. They also abstract from a general welfare analysis by focusing only on the ability of each system to procure kidneys for those who need them. For example, Elias et al. explain to participants that a public subsidy would be paid from savings on Medicare and Medicaid dialysis treatment costs. This ensured that participants could focus on the trade-off between repugnance and efficiency for each system rather than considering the cost to the taxpayer or other unintended consequences.





(a) System A - No payments

(b) System B - Payments of \$20,000



(c) System C - Subsidy of \$20,000

Figure E.1: Systems of Elias et al.'s Choice Experiment on Kidney Donations

The three systems presented to participants in Elias et al. are graphically depicted in the above supply and demand diagrams. System A represents a system with no payments (voluntary donations only) and a large shortage. System B allows payments and reduces the shortage. The effect of this reduction is varied at random both within and across participants. System C reinstates the price ceiling at zero but subsidizes donors. This shifts supply out to the right so that more people are willing to give a kidney to someone who pays zero for that kidney. Again, the effect of the reduction in the shortage of kidneys is varied both within and across participants. Note that this order of presentation “switches” System B and C relative to Elias et al.’s discussion.

For this paper’s experiment, restricting participants’ focus to the employment effects of minimum wages is more challenging. The best illustration of the problem comes from the optional comments participants provided. In the comments, some participants defended their choices by explaining that other policies could be implemented to deal with unemployed workers. The participants in Elias et al.’s experiment can’t make these kinds of claims. Further, some participants suggested their answers would be contingent on the size of the social safety

net provided. Others inserted their own dynamic equilibrium analysis along the lines of “a higher minimum wage would encourage education and skills training” or “higher wages for employed workers would lead to higher spending and job creation.” It could be argued that these comments suggest a more consequentialist view of the issue than our findings suggest. At the same time, there is a difference between being able to offer an explanation for a particular choice and being willing to make a different choice if that explanation doesn’t work out as imagined.

To keep the experiment as simple as possible (but no simpler), we restrict our experimental variation to only two systems. Each system mirrors one of the systems in Elias et al.’s set up but a key difference is that the systems are designed to create a different quantity demanded rather than quantity supplied. We considered adding a third system where the inefficiency caused by minimum wages is mitigated by a demand side subsidy to employers. This has merit as a test of the source of deontological preferences. That is: are workers paid too little or are employers not paying enough? A subsidy to workers from a third party (such as government) could solve one of those problems but does not solve the other.

To mirror Elias et al., our third system would have to reinstate a minimum wage while employers are encouraged to hire workers via a subsidy. The simplest, but not simple, version of this would be a demand-side payroll subsidy paid to employers who hire workers. Alternatively, we could encourage a change in labor supply via something like the Earned-Income Tax Credit. Under such a system, workers would take home the mandated minimum wage but part of that would come from a tax credit. Explaining the details of this approach to participants in a way that allows them to easily compare it to the other systems is not trivial. In addition, it’s not clear where the money would come from for such a system: there is nothing comparable to the savings from reduced dialysis spending that Elias et al. proposed as a source of funds for third-party subsidies in the kidney market.

Ultimately, we decided against this approach because a third system has less bite here compared to the Elias et al. approach. In Elias et al.’s experiment, varying the identity of who pays makes sense because payments are currently not allowed and payment from a third-party might be a crucial component in the kidney payment debate. It makes less sense for this

paper to pursue such an alternative: payment from an employer and from the government are clearly already morally permissible. Having just two systems allows participants to focus on the trade-off we are interested in examining.