

A Psychological Approach to Living Wages

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Abstract

Judgments about how much is enough to live on shape many basic life decisions. This study examines these living wage estimates, the role of income in shaping these estimates, and associations with redistributive policy. In a sample of 1,000 US residents, the researchers find that people tend to suggest that a living wage is higher relative to the federal poverty line, the state and federal minimum wage standard, a popular cost of living calculator (the MIT living wage calculator), and the proposed minimum wage standard of \$15 USD per hour. Cross-sectional and longitudinal analyses reveal that changes in income predict these estimates, such that, as income rises, estimates of a living wage also rise—a finding consistent with both social sampling and habituation processes. Exploratory analyses reveal the importance of these estimates to equity-enhancing policy support—higher living wage estimates predicted increased support for redistributive economic policies (e.g., progressive taxation). Together, these findings suggest that people’s beliefs about economic conditions are grounded in their socioeconomic experiences and provide important psychological insights to the fundamental question of how much is enough to live on?

A Psychological Approach to a Living Wage

“Social action, just like physical action, is steered by perception.” –Kurt Lewin (1948)

Cost estimates are fundamental to many aspects of daily decision-making for most people in the United States (US). Indeed, when considering relocating to a new city, town, or neighborhood, people must answer questions about their new place of residence, such as: How much money would I need to live here? Estimates surrounding this question can directly shape decisions about where, or whether, to relocate. They also have important policy implications, in the US, for understanding whether minimum wage standards meet (or fall short of) providing for the basic needs of people and families.

In this article, we present a psychological perspective on estimates of a living wage, which we and others define as a minimum income standard that is necessary for people to meet their basic needs (Glasmeier, 2020). We begin with an outline of the various ways that people in the US answer questions about a living wage. We then discuss what a psychological approach to living wage estimates adds to our understanding of minimum income standards and a psychology of socioeconomic status as well as provide an analysis of how these estimates change along with changes in income. We conclude by highlighting the important policy implications of living wage estimates, both in terms of their capacity to account for what other living wage benchmarks ignore, as well as, their correlates with support for more equitable wages.

How Much is Enough to Live On?

Since Baltimore passed the first living wage ordinance in the United States in 1994, over 125 cities and counties followed suit (Gillette, 2007; Luce, 2005; 2017). In July 24, 2009, the federal minimum wage in the United States was set to \$7.25 per hour. While this wage standard has remained unchanged for over a decade, marking the longest period without a raise in U.S. history,

inflation has pushed the real value of the federal minimum wage down by over 17% during that time period (Cooper, 2019).

Economists studying living wage policies in the US have developed location-dependent living wage assessment tools, such as the MIT living wage calculator (LWC; Glasmeier, 2020). The LWC, which relies on definitions that are widely adopted in discussions of living wages in the US, often excludes future oriented economic needs (e.g., wealth, savings) or fun and entertainment in favor of a narrower function that permits financial independence from public assistance (Ciscel, 2000). This contrasts with living wage calculations in other countries, like the United Kingdom, where a living wage is defined so that it enables workers to enjoy a decent quality of life, including recreation and savings for the future (Carr et al., 2016; McWha-Hermann et al., 2021; Searle & McWha-Hermann, 2021; Yao et al., 2017). Given the fundamental importance of wealth and savings in the US for life-altering actions (e.g., paying medical bills, college tuition), and the importance of leisure for quality of life (Gilovich & Gallo, 2020), this paper seeks to bring psychological answers to the question of “what is enough to live on?”

A Psychology of Living Wage Estimates

A central organizing theoretical perspective in psychology is that social contexts fundamentally alter how we think about, feel, and act in the social world (Bronfenbrenner, 2000; Lewin, 1948; Richeson & Sommers, 2016; Markus & Kitayama, 1991). A growing body of research indicates that contexts defined by socioeconomic status are particularly powerful in shaping health outcomes (Adler et al., 1994), happiness (Tan et al., 2020), and social behavior (Kraus et al., 2012; Mullainathan & Shafir, 2017; Stephens, Markus, & Townsend, 2007). Socioeconomic contexts shape and often distort perceptions of our social reality. In some studies, those higher in socioeconomic status report greater optimism (and also greater inaccuracy) in estimates of social class mobility (Kraus & Tan, 2015; Davidai & Gilovich, 2015), and racial equality (Kraus et al., 2019).

These estimates of inequality are multifaceted and caused by a combination of motivational and informational aspects of perception (Kunda, 1992). They also illustrate how socioeconomic contexts shape perceptions of the economic conditions people face around us. These findings highlight a clear limitation of US living wage policy discussions dominated by economic models—they ignore how much of our social reality and policy, as Lewin (1948) writes, “is steered by perception.” In line with other psychologists (e.g., Bullock & Lott, 2001; Smith, 2015), we suggest that perceptual processes related to socioeconomic contexts are important for understanding living wages.

Principally, we are interested in measuring how people’s perceptions of a living wage compare to cost of living calculators like the LWC as well as other policy-relevant living wage benchmarks set at the state and federal level. Our first hypothesis is that perceptions of living wages will be higher than both current minimum standards and LWC estimates. This prediction is based on general social movement trends in the US as well as preliminary social opinion surveys. For the former, social movements such as the Fight for \$15 movement have campaigned to raise federal minimum wage standards. The Fight for \$15 movement reflects a large group of people unsatisfied with the wage floor in the US (Cooper, 2019). These movement trends also indicate that many people view a living wage as significantly above the minimum wage standards set by state and federal authorities. For the latter, Pew has surveyed US families about their capacity to cover the costs of basic needs such as housing and food. In these surveys, 25% of parents say that in the past year they did not have enough money to buy food or to pay rent (Braga, 2022). When surveying lower income families, the percentage struggling to cover basic needs rises to 52% for food and rent (Braga, 2022). Together, these latter statistics suggest that many people continue to struggle to pay for their own cost of living despite labor protections granted by state and federal wage floors. This study can tell us more about whether perceptions of the cost of living reflect these economic struggles.

Income and Living Wage Estimates

In addition to our central prediction, that participants will have higher estimates of a living wage than minimum standards and the LWC, we also expected, for our second hypothesis, that living wage estimates would rise as a function of rising incomes. Two key theoretical perspectives, related to social sampling and habituation, provide grounding for this hypothesis.

Estimating a living wage is, in part, a question of inference: What socioeconomic cues do people observe in their local context that provide information about how much money someone needs to live on? Social sampling suggests that people extrapolate broader economic conditions from the socioeconomic cues present in their life (Mijs, 2018). A particularly relevant socioeconomic cue is income, because inferring monetary circumstances such as a living wage are fundamentally expressed, and thus observed, through the money that people have. People regularly encounter cues about income in their local context, which can shape their intuitions of what comprises an adequate living wage, and these cues occur both at an environmental and a personal level.

Structural differences in the social environment, such as residential segregation, bias people's exposure to economic conditions of similar others (Kraus & Park, 2017), which helps explain why people underestimate how much inequality exists around them (Norton & Ariely, 2011; Kiatpongsan & Norton, 2014). Most individuals observe the incomes of only a sample of the population and must infer different characteristics of economic conditions (e.g., a living wage, the average wage) from the observed information (Cruces et al., 2013). Observations based on these samples constrain people's inferences of economic conditions, as the environment affords biased cues about people's income (Dawtry et al., 2015; Galesic et al., 2012).

As people sort and are sorted into separate social class environments (Côté et al., 2017; McPherson, Smith-Lovin, & Cook, 2001; Shedd, 2015), people from higher versus lower income backgrounds experience divergent comparison sets. Higher income individuals, for instance, are

more likely to be around other higher income people, and lower income individuals are more likely to be around other lower income people. These comparison sets informationally and normatively influence what peers can and should have in their lives, which has implications for life satisfaction (Cheung & Lucas, 2016; Tan et al., 2020) and material consumption (Zhang et al., 2016). As a result, the proximate socioeconomic environments of people from higher versus lower income contexts can reinforce differences in expectations about a living wage, such that those higher in income will report a higher living wage floor.

In addition to social sampling, habituation also helps us understand the relationship between income and living wage estimates. People habituate to their financial circumstances and update their expectations about money (Brickman & Campbell, 1971), and this, in part, explains why individuals with more resources demonstrate a stronger desire for wealth than those with fewer resources (Wang et al., 2019). Those from higher income households habituate to higher quantities of money in their everyday life, and this may lead them to think differently about what constitutes an adequate amount of money. Consequently, when people from higher income households estimate a living wage, they might anchor their estimates at a higher point than people from lower income households due to egocentric biases (Ross & Sicoly, 1979). Taken together, the existing research suggests that socioeconomic status will be positively associated with living wage estimates, with higher-income participants reporting higher living wage estimates than those with lower incomes.

Importantly, social comparisons about living wages are likely to be determined based on social references in local contexts (Kraus, Park, & Tan, 2017). As such, we take a number of steps to account for local living wage trends. For instance, we compare participant living wage estimates to the LWC's calculations in each participants' county. We also compare participant estimates of a living wage to the Economic Policy Institute's (EPI) Family Budget Calculator, which models a less conservative estimate of a living wage that moves beyond subsistence and minimum financial

independence to an estimate that defines a living wage in terms of financial security (Stabile, 2008). A comparison between the EPI's family budget calculator and the LWC in the same county finds, for instance, that estimates of living costs are higher for the EPI calculator in the domains of medical expenses, transportation, taxes, and other expenses (Stabile, 2008).

We also use a consumer expenditure survey to gather a descriptive sense of the kinds of costs that each participant incurs. These data allow us to examine the unique relationship between income and living wage estimates after accounting for personal spending habits.

Finally, because we expect income to be causal in impacting living wage estimates, we take a number of analytic steps to establish a pathway toward causal identification. This includes analyses of income associations with living wage estimates that control for county-level economic characteristics, personality variables, perceptions of social status, and occupational as well as educational components of socioeconomic status. For a subset of our participants, we also include a 12-month longitudinal analysis where we measure income changes over the course of the early phase of the COVID-19 pandemic, with the expectation that those whose income went up would show increases in living wage estimates.

Methods

Sample

We recruited a sample of 1,000 adults ($M_{age}=38.28$, $SD_{age}=13.87$) currently residing in the United States using Prolific Academic (www.prolific.ac), an online crowdsourcing platform (Peer, Brandimarte, Samat, & Acquisti, 2017). We screened out potential participants whose approval rates on past assignments were below 95%. All participants were compensated \$2.00 USD for completing this 15-minute study, a rate comparable to other studies of similarly short duration. US residents from 46 states (plus Washington D.C. and Puerto Rico) completed the survey. The study and longitudinal follow-up were approved by the institutional review board at Yale University.

Procedure

At the start of the survey, we informed participants that the study assessed people's "opinions on wages" and that they would be asked to report wage estimates in terms of monthly wages in dollars, before taxes, for working adults residing in the same county as the participant. After participants indicated their consent, they estimated what they think is a living wage, the average wage of working adults, and the average wage of workers earning the minimum wage. Participants also reported what they consider to be a basic need (e.g., food, rent, etc.) that is covered by a living wage. Following these wage items, participants reported their support for different governmental policies. Participants then answered a battery of questions related to their monthly spending, employment context, relationships with and attitudes toward other people, financial worry, quality of life, housing circumstances, and financial literacy. Lastly, participants answered a host of individual difference measures and reported their demographic information. All data and materials are publicly available (<https://osf.io/j3vb7/>).

Measures

Living wage estimates. Participants reported what amount they consider to be the living wage in terms of monthly wages, before taxes, for the average working adult in their county. We defined a living wage for participants as "the amount of money that individuals must earn to sufficiently meet their basic needs if they are the sole source of income and are working full-time. In other words, the living wage is the minimum income standard that, if met, draws a very fine line between financial independence and the need to seek out public assistance." This description was based on the definition found in the MIT LWC. As in prior work, participants made these estimates ranging from \$0 to \$10,000 USD using a slider scale that is based on methods from prior research (e.g., Kraus, Hudson, & Richeson, 2022).

Average and minimum wage estimates. Using the same slider scale, participants reported

what they think is the average monthly wage for all working adults in their county, before taxes. For the minimum wage, participants reported what they think is the average monthly wage for working adults who work for minimum wage in their county, before taxes.

Support for redistributive policies. Participants reported their support or opposition for redistributive policies using a modified scale consisting of items from Ordabayeva and Fernandes (2017) and Page et al. (2013). These items were: “Creating a new tax bracket for incomes over \$1 million in order to collect more taxes,” “Expanding programs and initiatives that improve the economic opportunities of low-income people (e.g., training),” “Expanding programs and initiatives that improve the living standards (e.g., access to healthcare, education) of disadvantaged groups,” and “Creating a federal job guarantee program, which provides a job to anyone willing to work” ($\alpha=.84$, $M=5.81$, $SD=1.32$). The response scale ranged from *strongly oppose* (1) to *strongly support* (7).

Basic needs covered by a living wage. Participants reported what they considered to be a basic need that is covered by a living wage by selecting any of the following categories that apply (modified from the Consumer Expenditure Survey; CEX): “Housing”; “Utilities and Other Household Maintenance”; “Transportation”; “Income Tax”; “Food from Supermarkets (Groceries)”; “Food from Restaurants (Take-Out, Delivery, Dine In)”; “Retirement Plans”; “Debt Payments”; “Healthcare”; “Entertainment”; “Charitable Contributions”; “Clothing”; “Education (Post High School)”; “Personal Care Products and Services”; “Alcohol or Tobacco Products”; “Childcare”; “Internet”; “Telephone”; “Cable (TV)”; “Savings”; “Other (Please Specify).”

Monthly spending. Participants reported how much they spent each month on the following categories (modified from the Consumer Expenditure Survey; CEX): “Rent/Mortgage”; “Utilities and Other Household Maintenance”; “Transportation”; “Income Tax”; “Food”; “Social Security Contributions, Personal Insurance, and Pensions”; “Debt Payments”; “Healthcare”; “Entertainment”; “Charitable Contributions”; “Clothing”; “Education”; “Personal Care Products

and Services”; “Other (Please Specify)” ($M_{\text{TotalSpending}}=\$2,867.21$, $SD_{\text{TotalSpending}}=\$4,719.01$).

Employment status. Participants reported their employment status at their main job using one of the following categories: “Full-Time Hourly Employee”, “Full-Time Salary Employee”, “Part-Time Hourly Employee”, “Part-Time Salary Employee”, “Self-Employed”, “Temporary Layoff from a Job”, “Looking for Work”, “Not Looking for Work”, and “Other (Please Specify)” (75.6% Employed).

Occupation. Participants indicated their occupation category using the 2010 Census Occupation Codes. If their occupation was not listed as one of the options, they typed in their occupation title as a free response. We converted occupation into prestige scores based these Census occupation codes ($M=46.31$, $SD=13.70$).

Sociometric status. Using a six-item scale of sociometric status, participants indicated the level of social status they receive from others in three different domains: their workplace, their family, and their friendships. A sample item, adapted from Anderson et al., (2012), is “In my workplace, I am treated with respect” ($\alpha_{\text{work}}=.86$, $M_{\text{work}}=55.10$, $SD_{\text{work}}=1.36$; $\alpha_{\text{friends/fam}}=.88$, $M_{\text{friends/fam}}=5.51$, $SD_{\text{friends/fam}}=1.22$). The response scale ranged from *strongly disagree* (1) to *strongly agree* (7).

Attitudes toward poor people and rich people. Participants reported their attitudes toward poor people and rich people using a feeling thermometer (adapted from the American National Election Survey, 2018), which ranged from *very cold or unfavorable feeling* (0) to *very warm or favorable feeling* (100) ($M_{\text{poor}}=67.82$, $SD_{\text{poor}}=19.44$; $M_{\text{rich}}=44.63$, $SD_{\text{rich}}=24.74$).

Contact with poor people and rich people. Participants reported how much contact they have with poor people using a four-item measure adapted from Pettigrew (1998) on a slider scale ranging from *none* to *a lot*. A sample item is “How many poor people live in your neighborhood currently?” ($\alpha=.75$, $M_{\text{poor}}=37.82$, $SD_{\text{poor}}=23.06$). Participants answered the same set of measures for rich people ($\alpha=.77$, $M_{\text{rich}}=26.66$, $SD_{\text{rich}}=20.87$).

Financial worry. Participants reported their level of financial worry using a five-item scale adapted from the National Health Interview Survey (NHIS). Participants were asked to report how worried they were about not being able to pay for the following expenses: medical cost, food, normal monthly bills, rent, mortgage, or other housing costs; and credit card payments. The response scale ranged from *not worried at all* (1) to *extremely worried* (7) ($\alpha=.91$, $M=3.05$, $SD=1.71$).

Housing circumstances. Participants reported the state, county, city, and ZIP code of their current residence. We calculated the objective county-level living wages by matching participants' location data to the online data from the Living Wage Calculator (Glasmeier, 2020).

Personality. Participants completed a 10-item measure of the Big Five Personality Inventory (Gosling et al., 2003) using a 7-point scale ranging from *strongly disagree* (1) to *strongly agree* (7).

Belief in a just world. We measured participants' belief in a just world using a six-item version of the Belief in a Just World Scale (Lipkus, 1991), captured on a 6-point Likert scale ranging from *strongly disagree* (1) to *strongly agree* (6) ($\alpha=.93$, $M=2.94$, $SD=1.13$).

Entitlement. We measured participants' level of entitlement using a four-item subscale from the Grandiose Narcissism Scale (Foster et al., 2015). A sample item is "I expect to be treated better than average," and the response scale ranged from *strongly disagree* (1) to *strongly agree* (6) ($\alpha=.83$, $M=2.70$, $SD=1.11$).

Demographics. Participants reported their age, gender identity (Men=470, Women=518, Nonbinary=13), number of dependents ($M=0.56$, $SD=1.02$), race and ethnicity (White=741, Person of Color=257), social and economic conservatism ($M_{\text{Social}}=32.91$, $SD_{\text{Social}}=27.98$; $M_{\text{Fiscal}}=32.26$, $SD_{\text{Fiscal}}=29.00$), personal and household income ($Mdn_{\text{Personal}}=\$25,000\text{—}\$34,999$; $Mdn_{\text{Household}}=\$50,000\text{—}\$74,999$), highest personal and parental educational attainment (Personal College Degree=63.7%, Parental College Degree=54.3%), and subjective social rank ($M_{\text{Rank}}=5.07$,

$SD_{\text{Rank}}=1.81$).

Longitudinal Changes in Living Wage Estimates

In addition to the pre-pandemic survey reported above, all participants were recruited from February 2020 (Time 1) to complete additional surveys for a 3-month (Time 2) and 12-month (Time 3) follow-up survey. A total of 551 responses replied to our follow-up surveys. At the start of each survey, we informed participants that the study assessed people’s “opinions on wages” and that they would be asked to estimate different quantities related to how much people receive from wages, along with a collection of questions for a larger project on pandemic related experiences. All participants were compensated \$2.50 USD for completing the Time 2 and Time 3 surveys, a rate comparable to other studies of short duration on Prolific Academic. For the purposes of our analysis here, we collected estimates of living wages and average wages along with household income at Time 2 and Time 3.

Results

How much is enough to live on?

See Figure 1 for mean benchmarks of various monthly wage standards and participant estimates of wages. For our first hypothesis, we expected that people’s estimates of a living wage would be higher than minimum wage standards and economic models (i.e., LWC) that focus on county-level survival wages while discounting savings and leisure. To conduct this analysis, we first conducted a one sample t-test comparing participant mean living wage estimates to a monthly wage for someone earning the \$7.25 USD federal minimum wage standard, to the federally defined poverty wage—a Census classification that captures the proportion of families struggling financially in the US— and, to the state minimum standard. To compare estimates with the LWC, we conducted a paired sample t-test comparing participant living wage estimates to the mean LWC assessed within each participants’ county. To further contextualize our findings we also compared

living wage estimates to the monthly wage for someone earning the \$15 USD minimum wage proposed by the Fight for \$15 social movement using a one-sample t-test. We also used a paired sample t-test to compare living wage estimates to the participant mean for the family budget calculator from the EPI, which estimates county-level cost of living with an expanded definition accounting for attainment of economic security (Stabile, 2008).

The results of our analysis were consistent with our first hypothesis: We found that, on average, participants' estimates of a living wage ($M=\$2,656.71$, $SD=\$1,134.37$) were significantly higher than the federal minimum wage ($\$1,256.67$), $t(982) = 41.44$, $p<.001$, $d=1.23$, the poverty wage ($\$1,063.33$) $t(982)=46.78$, $p<.001$, $d=1.40$, or the state defined minimum wage (range $\$1,257$ to $\$2,427$), $t(981)=32.09$, $p<.001$. Critically 95.01% of participants reported a living wage estimate that was higher than the federal minimum standard and 86.85% of participants reported a living wage that was higher than the state minimum standard. Overall, there is strong and consistent evidence from our study that state and federal standards for the cost of living are lower than what people themselves report is enough money to live on.

Also consistent with our first hypothesis, participants' estimates of a living wage were significantly higher than those generated by a popular economic model for living wage estimates (i.e., the LWC) that calculates living wages using the same definition we provided to our participants ($\$2,150.18$), $t(976)=17.45$, $p<.001$, $d=0.56$. Similar to the above analysis, nearly 70% of participants reported a living wage estimate that was greater than the estimates generated by the LWC.

To further contextualize these findings, we also compared living wage estimates to the \$15 USD min wage proposal. We found that participant estimates of a living wage exceeded the monthly equivalent of the \$15 USD minimum proposal ($\$2,600.00$), $t(976)=4.316$, $p<.001$, $d=0.14$ although for this comparison, estimates of a living wage were much closer to this proposed new standard.

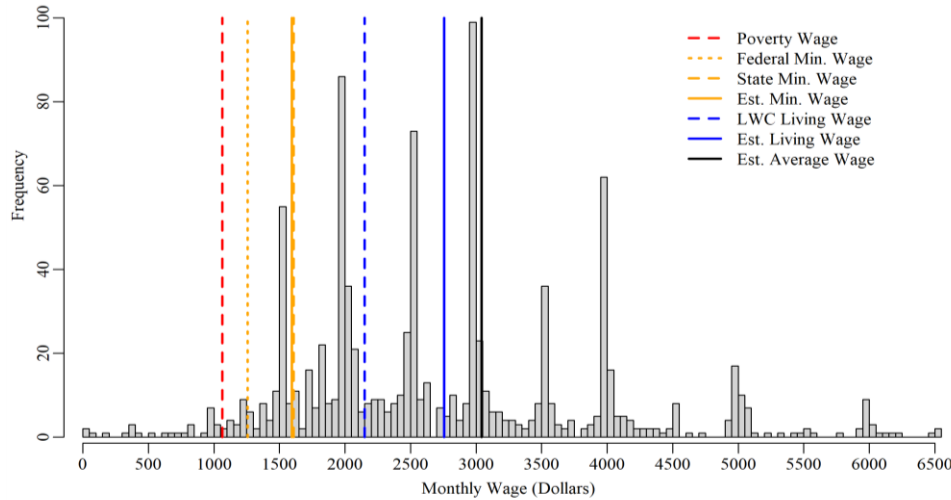


Figure 1. Frequency distribution of living wage estimates where the solid blue line indicates mean estimates (est.) of a living wage. Mean estimates for the average monthly wage (solid black line) and the county-level minimum wage (solid yellow line) are also shown. The living wage is compared to the poverty wage (dotted red line), federal minimum wage (dotted yellow line), state minimum wage (dashed yellow line), and the MIT living wage calculator (LWC) minimum wage at the county level.

Interestingly, participant estimates were lower than county-level living wages calculated by the family budget calculator of the EPI ($\$3,283.24$), $t(980)=-14.42$, $p<.001$, $d=0.46$ with nearly 70% of participants reporting a living wage that was below this standard. It is possible that the EPI calculator’s focus on “economic security” and “a modest standard of living,” rather than mere subsistence or survival, accounts for this underestimate (Stabile, 2008).

Alternative interpretations of living wage perceptions

Data we have presented thus far indicate that, by and large, people estimate the cost of living to be significantly higher than standards defined by the US Census, and state and federal laws, as well as by a popular cost of living calculator, and the \$15 USD minimum wage standard proposed by policymakers and activists. These data are consistent with our first hypothesis, but, from examining mean estimates only, it is possible that these estimates are simply a function of participants interpreting our question in ways that we did not intend. However, we think this possibility is unlikely given additional analysis.

One alternative interpretation is that participants would have a difficult time calculating any kind of monthly wages. This possibility seems unlikely when comparing perceived and actual state minimum wage standards. As you can see in Figure 1, people estimated the minimum wage in their state (\$1,595.41) to be roughly equivalent to the actual minimum wage of the state (\$1,608.16), $t(985) = -0.57, p = .569, d = .02$. This estimation accuracy should give us confidence that people have the capacity to compute local monthly wage standards based on federal and state policies.

A second related alternative interpretation of our findings suggests that perhaps participants conflated a living wage for average wages and answered the living wage question with a different reference point in mind than the one we intended. This appears unlikely after comparing average wage estimates and living wage estimates. In this comparison, we found that people estimated that the average wage (\$2,935.06) in their county was significantly more than what they estimated as a living wage $t(970) = 6.760, p < .001$. This comparison suggests that our participants believe that people in their county, on average, earn significantly more money than what they estimate as the cost of living. This pattern—where participants appear to suggest that people in their county are living significantly above the living wage—aligns with past research on optimistic misperceptions of economic circumstances (Kraus et al., 2017; Davidai & Gilovich, 2015). This finding also contrasts sharply with the Pew survey reported above, which found that one in four families have trouble paying for basic needs like food and rent (Braga, 2022).

It is also possible that our participants answered living wage estimates in more expansive terms than we intended, and this alone, accounts for mean differences relative to federal, state, and LWC standards. This possibility also seems unlikely after examining participant responses on the consumer expenditure survey. Table 1 presents the total percentage of our sample that included each type of expenditure in their living wage calculation. Leisure and entertainment items (television, entertainment, restaurants, alcohol, other) are mentioned by less than a quarter of participants.

Charity was also rarely mentioned as part of living wage costs, raising the possibility that offering financial assistance to others in need is not included as part of living wage calculations for most participants. These data suggest that living wage estimates were not driven by expansion of what things are considered necessary for a living wage— we return to the implications of these judgments in the discussion.

Table 1. Total percentage of participants who included each category in their calculation of a monthly living wage.

Category	% Including Category
Housing	98.70
Food from Supermarkets (Groceries)	97.10
Utilities and Other Household Maintenance	96.40
Transportation	85.81
Healthcare	83.32
Clothing	81.21
Telephone	71.63
Personal Care Products and Services	71.43
Internet	69.63
Income Tax	60.74
Childcare	54.05
Debt Payments	42.36
Savings	35.86
Retirement Plans	28.37
Education (Post High School)	26.67
Cable (TV)	18.28
Entertainment	16.68
Food from Restaurants (Take-Out, Delivery, Dine In)	10.09
Alcohol or Tobacco Products	5.59
Charitable Contributions	5.19
Other	1.90

Income and Living Wage Estimates

For our second hypothesis, we expected that earning higher incomes would predict higher living wage estimates. Though we did not assess the causality of this relationship through random assignment, we can assess this relationship by examining raw correlations between income and living wage estimates, as well as with regressions that account for personal and county-level alternative explanatory factors.

As depicted in Figure 2, we find that participants from higher income households reported a higher living wage estimate than those from lower income households, $r(976) = .27, p < .001$. In fact,

those from the highest income group reported a monthly living wage that is nearly \$1,100 USD higher than those from the lowest income group.

When we compare the subgroup means to the previous living wage standards, we find that those living in households making less than \$25,000 USD are, on average, reporting a living wage estimate that is not significantly different from the more conservative LWC, $t_s < 1.62$, $p_s > .11$. However, participants from households with incomes greater than \$25,000 all differed significantly from the LWC living wage benchmark in their local county, $t_s > 3.70$, $p_s < .001$. Participants who reside in households that are at or below the annual equivalent of the LWC living wage ($M = \$25,802.16$), on average, reported a living wage estimate that coincided with the LWC, while those from higher income households reported a living wage estimate that was higher than the minimum subsistence level generated by this commonly used economic model.

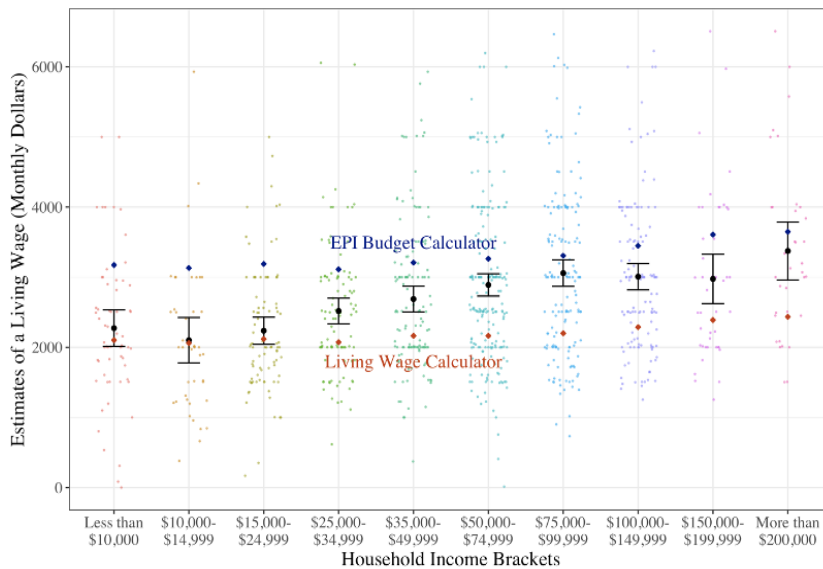


Figure 2. Living wage estimates are shown as a function of household income brackets as defined by US census income categories. Individual dots represent each participant estimates with black dots and error bars showing 95% confidence intervals. For comparison, we plot county-level living wage estimates from the LWC and the EPI family budget calculator.

We also observe this association between income and living wage estimates after accounting for a number of personal and county-level variables that could explain this relationship through a

linear regression analysis predicting living wage estimates with income, variables related to socioeconomic standing, spending habits and finances, employment characteristics and intergroup contact, personal and county-level economic circumstances, and personality factors. Overall, even after accounting for occupation, subjective status, education, spending, employment, and county-level living wages, and number of basic needs, higher income predicts greater estimates of a living wage. In the model, in addition to income, number of reported basic needs, spending, financial worries, number of dependents, county living wages, and agreeableness all continue to predict estimates of a living wage. That cost of living estimates and spending tracked living wage estimates is consistent with what you would expect given social sampling theory. We return to the association between number of reported basic needs and living wage estimates in the discussion.

Table 2. Results from a stepwise regression analysis predicting living wage estimates with income and various personal and contextual alternative explanatory variables. Estimates indicate unstandardized regression coefficients and standard errors. An asterisk (*) indicates $p < .05$.

Predictor	Beta	T-value	p-value
Household income	0.25	6.227	<.001*
Education	-0.03	-0.823	.411
Occupational prestige	0.05	1.605	.109
Subjective socioeconomic status	-0.02	-0.545	.586
Number of basic needs	0.26	8.410	<.001*
Spending (logged)	0.07	2.081	.037*
Financial worry	0.14	4.000	<.001*
Employed	-0.05	-1.630	.104
Respect at work	0.05	1.679	.094
Contact with rich people	0.02	0.657	.511
Number of dependents	0.09	3.041	.002*
County-level living wage	0.19	6.130	<.001*
Agreeableness	0.08	2.505	.012*
Entitlement	0.06	1.800	.072

Changes in Income and Living Wage Estimates

Although we do not experimentally manipulate income through cash transfers, we sought to investigate the possible causal relationship between income and living wage estimates by exploiting natural changes in wages occurring during the early stages of the COVID-19 pandemic. We did this with 551 of our original participants who reported income and living wage estimates at 3-months

and 12-months following Time 1 (February 2020). These follow-up assessments occurred in May 2020 and February 2021, respectively. Recall, that this time period of the COVID-19 pandemic in the US was marked by significant economic volatility, with many people losing jobs or undergoing pay cuts and work furloughs, as well as transitions back into full-time work and federal stimulus checks. No substantive differences between those who responded to our survey follow-up and those who did not were observed in terms of Time 1 income or living wage estimates.

Our analysis focuses on changes between Time 1 and Time 3, but similar results are seen at Time 2 (see online supplementary materials). Importantly, though this longitudinal analysis cannot rule out substantive other differences between participants whose income increased or decreased during the pandemic, we can still observe how changes in income relate to changes in living wage estimates. Of our participants who reported income at Time 1 and Time 3, $n=79$ reported a decrease in income by one or more census income brackets, $n=346$ saw their income stay the same, and $n=124$ reported an increase in income (the remaining participants did not report income at one time point).

We will present several analytic strategies for examining the longitudinal relationship between participant census income bracket and living wage estimates. First, we examined a raw correlation between the change in income between Time 1 and Time 3 and change in living wage estimates at the same time points. This relationship was positive and significant, in line with our hypothesis, $r(547)=0.09, p=.035$. Next, we conducted a linear regression analysis predicting living wage estimates at Time 3 with living wage estimates at Time 1, income at Time 1, and the change in income between Time 1 and Time 3 as simultaneous predictors. We found that change in income was not significant in this model $B=.073, t(544)=1.930, p=.054$, but the relationship was directionally in line with our predictions. Income ($B=.136, t(544)=3.496, p<.001$) and living wage estimates ($B=.467, t(544)=3.496, p<.001$) at Time 1 were both associated with living wage estimates at Time 3.

Our analysis, thus far, provides some evidence for the longitudinal relationship between income and living wage estimates, but the evidence provided does not yet account for the multilevel nature of the data. To account for this, we categorized participants according to whether their income decreased, stayed constant, or increased between Time 1 and Time 3. We then used this quasi-experimental factor in a 3 X 3 mixed analysis of variance where time was the within-subjects factor with living wage estimates as the dependent variable. This analysis showed no significant effect of time $F(2,1090)=0.989, p=.372$, no effect of income change $F(2, 545)=0.696, p=.499$, and a significant interaction between time and income change $F(4,1090)=3.352, p=.010$. A linear contrast was significant for this interaction $F(2,545)=4.356, p=.008$.

Examination of pairwise means using Fisher's LSD reveals that those who gained income between time 1 and time 3 also increased their estimates of a living wage during that same time period ($M=\$297.37$), $p=.009$. Those experiencing no income changes did not change their living wage estimates between time 1 and time 3 ($M=\$70.80$), $p=.293$. Similarly, those losing income between time 1 and time 3 showed significant decreases in living wage estimates at time 2 ($M=-\$336.47$), $p=.012$, but this decrease was no longer statistically significant at time 3 ($M=-\$264.15$), $p=.061$.

To account for the time nested aspects of our data while also allowing us to model the real distance between the assessment time points, we employed a multilevel growth curve model with estimates obtained using restricted maximum likelihood (REML). For this analysis, we predicted living wage estimates with time and income change and their interaction as predictors. For our model we allowed for random intercepts and fixed effects of time and income change. Consistent with the repeated measures analysis, there was no significant effect of time $t(1094.96)=1.258, p=.209$, a significant effect of income change $t(872.26)=-2.193, p=.029$, and a significant interaction between income change and time $t(1095.22)=2.633, p=.009$. An examination of means using Fisher's

LSD reveals that, for those whose income went up between Time 1 and Time 3, estimates of a living wage also increased significantly over the same time period (\$302.21, $p=.005$). In contrast, participants whose incomes did not change saw no changes in living wage estimates between Time 1 and Time 3 (\$70.80, $p=.268$). Similarly, those participants who lost income between Time 1 and Time 3 showed significant decreases in living wage estimates at Time 2 (-\$337.37, $p=.012$) and Time 3 (-\$264.15, $p=.048$). Figure 3 shows the results of this analysis.

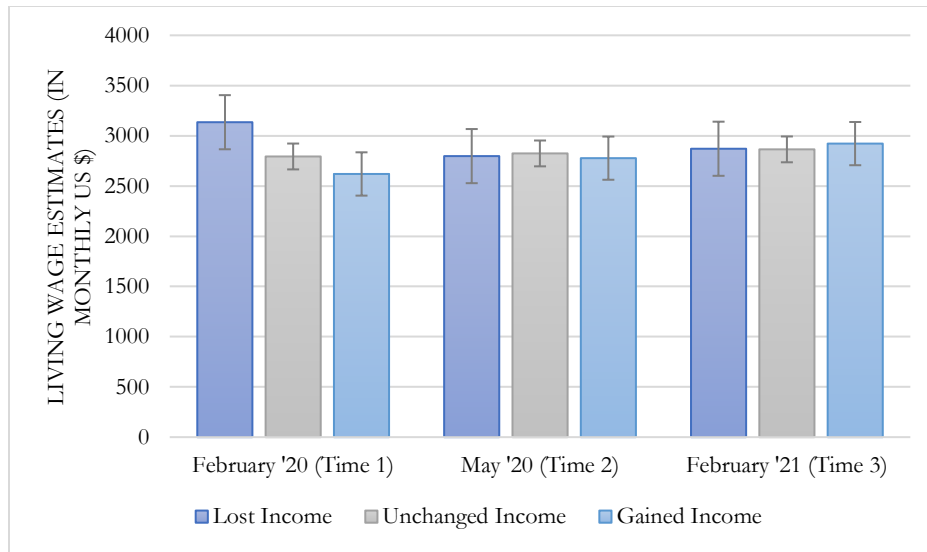


Figure 3. Participant mean living wage estimates and 95% confidence intervals for those that lost at least one census income bracket, had unchanged income, or gained at least one census income bracket. Means are reported as a function of our growth curve model analysis where time and income change are fixed effects. Participants who gained income saw significant increases in living wage estimates between Time 1 and Time 3 whereas participants who lost income saw significant decreases in their living wage estimates over the same time period.

Redistributive Policy Support

Though these analyses are exploratory, one of the reasons we have been interested in living wage estimates is that they may predict people's policy preferences in the domain of redistributive economic policy. We explored this possibility in a linear regression analysis predicting support for our aggregated redistributive policy items (e.g., "Creating a new tax bracket for incomes over \$1 million in order to collect more taxes"). We included living wage estimates as a predictor, along with

the following control variables: racial identification, income, education, gender, age, belief in a just world, conservatism, and average wage estimates. We included the final measure given that average wage estimate errors are likely to be correlated with living wage estimates due to common method variance. The results of this analysis show that higher living wage estimates significantly predict greater support for redistributive policies $B=0.150$, $t(952)=5.151$, $p<.001$, after controlling for demographic and political belief measures. In addition to living wage estimates, belief in a just world $B=-0.134$, $t(952)=-4.619$, $p<.001$, gender $B=-0.078$, $t(952)=-2.972$, $p<.01$, social $B=-0.127$, $t(952)=-3.158$, $p<.01$ and political conservatism $B = -0.384$, $t(952) = -9.287$, $p<.001$, and lower average wage estimates $B=-0.081$, $t(952)=-2.755$, $p<.01$, were also related to redistributive policy preferences.

Although exploratory, this last reported result highlights the importance of a psychological understanding of living wage estimates. Understanding these estimates is central to a better understanding of which people are likely to support equity-enhancing economic policies, and potentially, why they might be in support of these policies: to help people meet their basic needs.

Discussion

At a time when job opportunities in the US labor market are becoming more polarized and less secure (Autor, 2010)—with workers taking on more economic risk by entering gig work (Friedman, 2014), with automation threatening to phase out jobs, and with 1 in 4 families reporting an inability to pay for food and housing (Braga, 2022)—low wage labor policies have become a topic of increasing interest and importance (Lambert, 2009). On this policy front, movements such as the Fight for \$15 have sought to elevate wage standards. These efforts are meant, in part, to establish a living wage, a minimum income necessary for workers to meet their basic needs.

Many organizations turn to economic cost-of-living calculators like the LWC to set wage standards, but economic calculators of the minimum wage standard rely on people making choices about what the minimum standard of living should include (Stabile, 2008). These choices about what

is enough for a person, or family, to live on are based in social perception and fundamentally shaped by the social contexts people inhabit. Despite its absence from policy considerations, people's perceptions of what is enough reveal an important context for understanding these economic calculators, and importantly, they highlight the impact of socioeconomic contexts in perceptions of living wages.

In this work, using perceptions generated from a sample of nearly 1,000 US adults, we find consistent evidence in support of our two central predictions: (1) that people in the US consistently report that living wages should be higher than census, state, and federal standards, as well as a popular living wage calculator that assesses minimum cost of living defined by what keeps people self-sufficient and not dependent on federal or state support (LWC); and (2) that socioeconomic contexts shape these perceptions such that those with more income consistently report a higher living wage estimate. We see these patterns when we control for personality variables, county-level variation in economic circumstances, and when we measure income losses and gains over the first year of the COVID-19 pandemic.

One conclusion of this research is that, if cost of living calculators simply asked people "what is a living wage in your county?" they would get an answer that is significantly higher than the one estimated by the most widely used economic models. Given that 1 in 4 families struggle to pay for their basic food and housing needs (Braga, 2022), it is possible that such a perceptual benchmark for living wages is needed.

Our findings about income's role in shaping perceptions of a living wage are consistent with a growing body of psychological research indicating that socioeconomic contexts impact our health (Adler et al., 2020), life-satisfaction (Tan et al., 2020), belonging in organizations (Stephens et al., 2014), and our perceptions of inequality in society (Davidai & Gilovich, 2015). Moreover, that income levels shape living wage estimates is consistent with both habituation and social sampling

theory—wherein local contexts provide the information we use to make inferences about how other people live (Mijs, 2008).

We also found some longitudinal evidence of the relationship between income and living wage estimates, which suggests that income's influence on living wage estimates is an important direction for future research. Our data exploited natural changes in income gains and losses as a function of the significant economic volatility of the first year of the COVID-19 pandemic, but it is likely that people who gained and lost income during this time period differ in at least a few critical ways that were unmeasured in the current research. Research using real and substantial cash transfers that instigate a US Census income bracket change would definitively reveal whether income is causal in this process of understanding living wages.

One possible interpretation of our research, that perceptions of living wages are subject to errors and distortions, is possible from reading this manuscript— but it is one that, we believe, goes well beyond the data here. Several pieces of evidence presented here, along with prior research (e.g., Kraus et al., 2022), indicate that people can reliably report about their beliefs regarding the economic circumstances of those around them. For instance, in these data, participants accurately reported state-level monthly minimum wage standards. As well, participants reported living wage estimates that did not rely on expanding the list of basic need categories— though, perhaps, given the importance of savings and leisure in our everyday lives (e.g., Gilovich & Gallo, 2020), expansion is warranted in policy discussions of minimum wages. Instead, our findings show that people believe a living wage is significantly higher in the US than nearly all benchmarks provided by state and federal wage standards as well as the proposed wage floor of a \$15 USD minimum wage.

An interesting observation in these data comes from an examination of what expenses our participants thought should be included in living wage estimates. The majority of our sample thought leisure was not part of a living wage and we see this as a critical line of future inquiry. One

implication of these trends is that our participants think that basic living means the absence of leisure. Given how important experiences actually are for well-being (Gilovich & Gallo, 2020), it will be important in future research to explore how informational interventions that highlight the importance of leisure for well-being could lead people to think of leisure as more necessary. In this same vein, only a small percentage of participants thought that charity ought to be accounted for in a living wage. Again, we question whether monetary help for others, given the importance of prosocial behavior for community building (Peña, 2022), is really superfluous to a living wage and whether similar informational interventions that highlight its importance would shape people's estimates of living standards. That living wage estimates were lower than the EPI family budget calculator, a calculator that provides a more comfortable living standard beyond self-sufficiency (Stabile, 2008), is indicative that people may be calibrating to a much lower cost of living, on average, that strips away comfort, community, and leisure.

Previous research has documented the mismatch between people's perception of economic realities and objective economic metrics (e.g., Kraus & Tan, 2015; Norton & Ariely, 2011). This work documents perceptual variation in another important economic domain (i.e., living wages) and demonstrates its associations with status characteristics, due to people calibrating their estimates of what others need to their own socioeconomic circumstances. Furthermore, this research begins to articulate how income relates to policy preferences. The findings lead us to speculate that support for redistribution may depend not only on beliefs about opportunity structures (McCall et al., 2017), but also on thresholds for a basic but decent standard of living, which are shaped by socioeconomic experiences.

Though we have mostly interpreted living wage estimates as shaped by social sampling and habituation, it is also important to consider motivational tendencies and their capacity to shape living wage perceptions. For those high in income, high living wage estimates justify the rejection of

progressive taxation policies that lower net income. For those low in income, low living wage estimates lessen feelings of abject scarcity (e.g., Shedd, 2015). Future work that more directly assesses motivational concerns in living wage contexts is likely to reveal additional psychological processes that impact these living wage judgments.

Living wage estimates are fundamental to some of our most basic life decisions related to the jobs we take and where we can afford to live. Psychology as a discipline is fundamental to our understanding of these important questions, though it has historically been left out of living wage discussions in the US. Here we provide some evidence suggesting the critical importance of psychological insights to our understanding of living wage standards. We hope these insights can be leveraged to better understand how socioeconomic contexts shape living wage estimates, and to assist policymakers who might use these insights to create more just economic standards that provide enough for people to live healthy, happy lives.

Author Note

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