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Gender Wage Gap, Bargaining Power, and Charitable Giving of Households*

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Abstract

We study how the relative wages of women (to those of men) affect the charitable giving patterns of married couples in the US. Using Bartik-style wage measures for men and women, we find that when relative female wages increase, the share of total charitable giving out of family income increases. Moreover, the share of charitable giving to religious organizations, which are preferred by women, increases when labor market conditions become more favorable to women. Our results are consistent with household bargaining explanations, and we provide additional supportive evidence. As a robustness check, we examine the impacts of the negative gender-specific shocks to manufacturing in Autor et al. [2019] and find similar results.

JEL classifications: D12, D13

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1 Introduction

Charitable giving accounted for 2.3% of the gross domestic product (GDP) in the United States in 2020. Giving by individuals (as opposed to by foundations, through bequests, or by corporations) totaled an estimated $324.10 billion in 2020, which is equivalent to 1.5% of GDP. More than 60% of American households practice charitable giving (Giving USA Foundation [2021]), spending approximately 2% of their family income on average each year.[1] These numbers suggest that it is crucial to explain how households make decisions about charitable giving to understand general giving patterns in the United States.

Decisions made within households are more complex than decisions made by individuals primarily because household members may have different tastes for charitable giving. In particular, men and women have different propensities to give and different preferences for giving categories (Andreoni et al. [2003], Yörük [2010], Mesch et al. [2015]). The final decisions of households are a function of not only the factors that usually matter for individual consumption choices such as prices, income, and demographic characteristics, but also the potentially different preferences of husbands and wives for charitable giving and the power relationship between them. For instance, if there is a household in which the husband derives positive utility from giving to health organizations while the wife obtains no utility from such giving, the couple must resolve this preference conflict within the household. *Relative power within the household* is important for predicting household allocations because it is likely that the final outcome would be close to the preferences of the more powerful spouse.

Despite its importance, it is challenging to credibly estimate whether relative power influences consumption patterns within households because it is difficult to find exogenous variations in relative power. Bargaining power is inherently hard to observe, and household-level variables that reflect bargaining power between spouses, such as relative income, relative education, and relative age, are likely to be correlated with unobserved factors that affect charitable

[1] More than 75% of the total gifts given annually are given by individuals. Foundations, bequests, and corporations account for 12%, 6.5%, and 6.5%, respectively (List [2011]).

giving patterns.[2] In the literature, Andreoni et al. [2003] and Yörük [2010] descriptively document that giving patterns, including those related to propensity to give, how much to give, and where to give, depend on who makes decisions within the household, which is likely to reflect relative power. Although they provide important insights into household decision-making regarding charitable giving, it is difficult to interpret these results in terms of bargaining power because who makes the decision is correlated with many other household attributes, including unobservable preference heterogeneities. More recently, Mesch et al. [2021] examined the impacts of spousal income on charitable giving, using family fixed effects to account for unobserved heterogeneity, and found that women's earned income significantly influences giving behavior. With panel data, family fixed effects can be used to account for time-invariant family characteristics, but concerns about biased estimates remain if time-varying unobservables affect family giving patterns. Furthermore, even though Mesch et al. [2021] discusses the impacts of actual husband and wife income on the charitable giving patterns, the literature on household economics suggests that not just actual but also *potential* wages determine the level of bargaining power within households (Aizer [2010]). To our knowledge, there is no study investigating the impacts of potential wages on charitable giving patterns.

In this paper, we study how the relative power of spouses affects the charitable giving decisions of married households, using arguably exogenous market-level (potential) female-to-male wage ratios as a proxy for the relative power of spouses. Specifically, we construct Bartik-style wages for men and women, exploiting the cross-sectional variation in the industry-specific employment shares for each gender across states and yearly national wage growth in each industry. The identification takes advantage of the fact that men and women are dominant in different industries (e.g., manufacturing for men and services for women). Our wage measures are unlikely to be correlated with local changes (e.g., worker characteristics) related to charitable giving because the industry composition component is fixed at its initial level and wage growth varies at the national level. We discuss our identifying assumptions in detail in our

[2]In the family economics literature, bargaining power is captured by Pareto weights within households. As its empirical counterpart, the couples' sharing rule, i.e., how couples split income, is often considered and estimated as a structural parameter.

empirical section. Our wage measures build on the seminal idea of Bartik-instruments (Bartik [1991]) and previous studies on relative female wages (Aizer [2010], Bertrand et al. [2015], and Shenhav [2021]).

Using the Panel Study of Income Dynamics (PSID) for 2003-2019, our empirical analysis begins with a descriptive analysis of the different preferences of men and women. For this, we use single males and females because we can observe individual spending on charitable giving for single individuals. For married couples, we observe only household-level spending on charitable giving, which makes it difficult to infer individual preferences. We find that women have a higher propensity to give and tend to give greater amounts than men, controlling for income and demographic characteristics; this is consistent with previous findings in the literature. We also show that women allocate significantly more of their income to religious categories among the different categories of giving.

Using our measure for the relative wages of women, we find that the total donation share out of family income increases by 0.37 percentage points (18%) when relative female wages (female wages/male wages) increase by 1 standard deviation (SD).[3] We also find an increase in the propensity to give, but this increase is statistically insignificant. The result for the amount given is similar to the share result and statistically significant. Our results show that among the different categories of giving, the share of religious giving out of family income increases by 0.39 percentage points (28%) when the relative wages of women increase by 1 SD. We do not find any impact on other categories of giving. The result for religious giving may simply be a mechanical result arising from the increase in total donation shares because religious giving is the largest component of charitable giving. However, we find that the religious giving share *out of total donations* also increases when the labor market changes in women's favor, suggesting that households do consequently allocate more to religious categories. These results support the bargaining power interpretation because household allocations change to match women's preferences when there is an increase in the relative wages of women.

While our results are consistent with the predictions of the model on household bargaining

[3]The mean and standard deviation of relative female wages are 0.919 and 0.095.

over consumption, there may be different channels that could explain changes in the giving patterns of households. For instance, total household income may be affected by changes in relative female wages. This may lead to changes in household allocations to charitable giving through income effects. Another possibility is that prevailing social norms regarding charitable giving may change following changes in relative wages. Given that we use market-level relative wages, we cannot entirely rule out the possibility that charitable giving patterns are altered through a state-level cultural channel rather than through within-household dynamics.

We provide two additional pieces of evidence supporting the household bargaining explanation. First, we show that the probability that husbands are the major decision-maker regarding charitable giving within households significantly decreases with an increase in relative female wages. If changes in household charitable giving were solely driven by innovations in social norms regarding charitable giving without any changes within households, we should not observe any impacts on decision-making authorities, which are closely related to decision-making power. Second, exploiting the panel structure of the PSID, we examine whether household spending on charitable giving differs when the wife's actual share of earnings changes *within households*. Given that our Bartik-style wage measures do not have enough variation within households, we use changes in the wife's actual share of earnings over time within households. Using specifications with family fixed effects, we find results consistent with the findings obtained by using our constructed measure of Bartik-style relative wages at the state level; the shares of income spent on total donations and on religious donations increase when the relative wages of women increase within households. It is difficult to explain the consistency of these results if our main finding was driven only by state-level cultural changes and household dynamics did not react to relative wages. We rule out the total income channel by showing that total family income does not change when relative wages change.

As a robustness check, we conduct an analysis using the negative manufacturing shocks in Autor et al. [2019]. In contrast to the Bartik-style wage measures, which aggregate shocks from all industries, these shocks focus on a single industry: manufacturing. Following Autor et al. [2019], we construct gender-specific negative manufacturing shocks from increases in interna-

tional competition at the commuting-zone level and evaluate how they affect the charitable giving patterns of households. Using a different geographical unit and a different industry shock generates similar results. Negative male-specific (female-specific) manufacturing shocks increase (decrease) charitable giving shares and religious giving shares. This corroborates the story that better labor market conditions for women significantly increase the charitable giving of married households.

We make several contributions to the literature. First, even though households are an important decision-making unit for charitable giving, studies examining how households make decisions about charitable giving are scarce and mostly descriptive (Andreoni and Payne [2013]).[4] We provide novel evidence that labor market conditions favorable to women *lead to* increases in total donations and religious giving, exploiting arguably exogenous variations in the labor market.

Second, we contribute to the family economics literature on bargaining power and household allocations. Previous literature has shown that variables that may influence relative power within households, including marriage market conditions, the gender of the benefit recipients, and divorce law, affect household allocations related to, for example, consumption and labor supply (Chiappori et al. [2002]; Ahn [2020]; Lundberg et al. [1997]; Attanasio and Lechene [2014]; Armand et al. [2020]; Voena [2015]). Studies show that relative wife income influences household decision making, using the gender of recipients for pensions and conditional cash transfers (Duflo [2003]; Attanasio and Lechene [2014]; Armand et al. [2020]). We show that gender-specific labor market conditions are also an important determinant of household consumption decisions. Unlike pensions and conditional cash transfers, however, which affect only a subset of populations, labor market conditions are likely to affect all working-age people. This paper specifically focuses on charitable giving, which constitutes a significant share of family income expenditure but has been largely overlooked to date in the literature.[5]

[4]For a descriptive analysis of married couples' charitable giving, see Burgoyne et al. [2005]; Brown [2005]; Rooney et al. [2007]; Bekkers and Wiepking [2011]; Wiepking and Bekkers [2012]; Eagle et al. [2018]; Einolf et al. [2018]; Andreoni et al. [2003]; Yörük [2010]. Of those, Andreoni et al. [2003] and Yörük [2010] are most relevant to our paper in that they show different charitable giving patterns by decision-making authority.

[5]Ahn and Koh [2022] also study household consumption choices by exploiting gender-specific labor market

Finally, we add to a growing body of work quantifying the impacts of gender-specific labor market shocks by exploiting Bartik-style instruments. The relative wages of women affect marriage and fertility (Autor et al. [2019]; Shenhav [2021]; Kearney and Wilson [2018]), divorce and marital satisfaction (Bertrand et al. [2015]), and domestic violence (Aizer [2010]; Munyo and Rossi [2015]). Our study provides evidence on the impacts of gender-specific labor market conditions on consumption, which has important welfare implications in households.

This paper proceeds as follows. In Section 2, we describe our conceptual framework. In Section 3, we explain our data. Section 4 and Section 5 describe the different preferences of males and females and the patterns of giving among married couples. We describe our empirical strategy in Section 6. Section 7 presents our results and Section 8 discusses the mechanisms. Section 9 provides robustness check results. Section 10 concludes.

2 Conceptual framework

We can understand the choice of charitable giving as a household consumption problem. We take a similar approach to that of Browning et al. [2014] to model household decision-making. Suppose that households are composed of a husband (h) and a wife (w). Husbands and wives may have different preferences over different private goods and public goods. Assume that individual preferences are Cobb-Douglas. The utilities of husbands and wives are given as follows:

$$\begin{aligned} U^h &= \sum_k \alpha_k^h \log q_k^h + \sum_j \beta_j^h \log Q_j \\ U^w &= \sum_k \alpha_k^w \log q_k^w + \sum_j \beta_j^w \log Q_j \end{aligned}$$

where $\alpha_k^i > 0, \beta_j^i > 0$ and $\sum_k \alpha_k^i + \sum_j \beta_j^i = 1$ for $i = h, w$. q_k^i and Q_j indicate quantities of private good k and public good j, respectively. Charitable giving in each category may be a private good or a public good depending on the preferences of the husbands and wives. For instance, if a husband does not derive any utility from donating for educational purposes when

shocks, but they focus on grocery-related items.

the wife derives positive utility from such donations, it is a private good for the wife. If both the husband and the wife derive positive utility from a certain type of charitable giving, it is a public good within the household.

Household utility can be written as follows:[6]

$$U(\mathbf{q_h}, \mathbf{q_w}, \mathbf{Q}, \mu) = U^h(\mathbf{q_h}, \mathbf{Q}) + \mu(\mathbf{P}, \mathbf{p}, x, \mathbf{z})U^w(\mathbf{q_w}, \mathbf{Q})$$

μ is a Pareto weight, which captures the "power" of the wife. μ may be a function of prices ($\mathbf{P}$ for public goods and $\mathbf{p}$ for private goods), total expenditures (x), and distribution factors. Distribution factors, denoted as $\mathbf{z}$, are variables that affect the decision process but do not affect preferences or budget constraints. For instance, the relative income of the wife within the household is an example of a distribution factor. To simplify the analysis, we normalize prices to 1. Then, the budget constraint of the household becomes:

$$\sum_k (q_k^h + q_k^w) + \sum_j Q_j = x$$

where x is household total expenditure.[7]

With the above household utility function and budget constraints, household demand for goods is given as follows:

$$\begin{aligned} q_k^h &= \frac{\alpha_k^h}{1+\mu} x \\ q_k^w &= \frac{\mu\alpha_k^w}{1+\mu} x \\ Q_j &= \frac{\beta_j^h + \mu\beta_j^w}{1+\mu} x \end{aligned}$$

From these demand functions, we can derive predictions about what would happen when a variable that affects the Pareto weight changes. We consider two cases, in which donations

[6]We assume egoistic preferences, but the model can be extended to incorporate altruistic preferences.

[7]For simplicity, we assume that household income is the same as household expenditures. In other words, there is no borrowing or lending.

are either a private good or a public good.

(i) Charitable giving is a private good

Charitable giving is a private good for husbands or wives if only one of them derives utility from it. Suppose that a category of charitable giving is valued by the husband only. For this private good, from the demand equation above, we have:

$$\frac{\partial q_k^h}{\partial \mu} = -\frac{\alpha_k^h}{(1+\mu)^2} x < 0$$

In other words, when the wife's bargaining power increases, the spending on this specific charitable giving category decreases. On the other hand, if a certain category of charitable giving gives positive utility to the wife only, then we have:

$$\frac{\partial q_k^w}{\partial \mu} = \frac{\alpha x}{(1+\mu)^2} > 0$$

This shows that when the power of the wife increases, spending on the charitable giving category from which only the wife obtains utility increases.

(ii) Charitable giving is a public good

If both the husband and the wife receive positive utility from a certain category of donation, it is a public good within the household. The equation below shows how public good consumption changes when the bargaining power of the wife increases.

$$\frac{\partial Q_j}{\partial \mu} = \frac{\beta_j^w - \beta_j^h}{(1+\mu)^2} x$$

This suggests that household consumption of public good j increases if and only if the wife cares more about good j than the husband does ($\beta_j^w > \beta_j^h$). Suppose that a wife prefers to spend more on charitable giving related to religion than her husband. If the wife's bargaining power increases, household consumption of religious charitable giving increases.

In summary, we make the following prediction regarding charitable giving:

Prediction 1. *When the bargaining power of the wife increases within a household, charitable giving patterns become closer to the wife's preferences.*

3 Data

This section describes the datasets that we use in the empirical analysis.

3.1 Data on relative wages

We use two data sources to construct our relative wage measures. First, we construct the weights for our Bartik-style relative wage measure using data from the 2000 Census. The industry weights are constructed at the race, education, and state level for each gender, indicating female (male) workers of a given race and education level working in a specific industry in 2000. Our national wage comes from the Quarterly Census of Employment and Wages (QCEW) for 2002-2018 from the United States Bureau of Labor Statistics.[8] This dataset includes state-industry-year-level wages. Using this dataset, we construct national wage growth rates, calculated excluding the focal state.

3.2 Data on charitable giving

We use the 2003-2019 waves of the PSID, which give us charitable giving outcomes for the calendar year 2002-2018. The PSID is a nationally representative household panel survey in the United States that began in 1968. Interviews were conducted annually until 1997 and have been conducted biennially since 1997. The PSID collects data on the family as well as individuals living within the family, focusing on family economics, demographics, and health. It has collected information on household philanthropic giving since 2001.[9] The data on charitable giving are collected at the household level, where either the reference person or the spouse/partner in married and cohabiting couples responds to the questions.

[8]The PSID data we use span the wave year 2003 to the wave year 2019, but the surveys ask about the previous year. We use the QCEW from 2002 to 2018 to match the PSID.

[9]We do not use the 2001 wave data because of inconsistencies in the questions within the philanthropy module.

The philanthropy module consists of questions on overall charitable giving and questions on specific charitable giving categories. The overall charitable giving question asks about whether households made any charitable donation greater than $25 in the previous year. The definition of charitable giving in the PSID includes giving to religious or nonprofit organizations that help those in need or that serve and support public interests. However, it does not include political contributions.[10]

The questions about specific charitable giving categories are more detailed, and they ask not only about whether households made contributions within specific categories but also about the amount the household donated in the previous year. The specific donation categories include religious purposes or spiritual development; health care and medical research; education; youth or family services; the arts, culture, or ethnic awareness; neighborhood improvement; environmental preservation; international aid or world peace; organizations that help people in need of food, shelter, or other basic necessities; organizations that serve a combination of purposes; and any other organizations. The details for each category are presented in Table A1. We calculate the total amount of charitable giving by adding together the donation amounts in each category. In 2003 and 2005, this module also collected information on the household decision-making authority regarding charitable giving.

Our main sample comprises married families whose heads are between 25 and 60 years old because we are interested in how relative female wages affect the charitable giving behavior of married couples. We keep married couples whose head and spouse both exist in the PSID.[11] We do not include cohabitating couples or same-sex couples in the sample. To understand the differential preferences of men and women, we use single male and female individuals who are between 25 and 60 years old.[12] The descriptive statistics for married couples are presented in Table 1.[13] The average ages of the husbands and the wives in the sample are 44.7 and

[10]From the PSID definition, "Donations include any gifts of money, assets, or property made directly to the organization, through payroll deduction, or collected by other means on behalf of the charity. The PSID interview is limited to donations made during the calendar year before the PSID is conducted."

[11]The share of married couples with missing information for one spouse is less than 0.5% of all married couples.

[12]Singles include persons who are never married, widowed, divorced or annulled, or separated.

[13]Descriptive statistics for single individuals and married couples are presented in Table A2.

43.1, respectively. The average family income is $96,873 in 2002 dollars. Husbands tend to be the primary earners, and the husbands' mean labor income is almost twice as high as the wives' mean labor income. Women tend to go to church more frequently among both single individuals and married couples (Table A2).

3.3 Data on the tax price of giving

The tax deductibility of donations provides people with incentives to increase their donations since American taxpayers can choose to deduct their charitable giving from their taxable income when they itemize deductions. Therefore, charitable giving deductions mean a lower effective price of giving for each dollar donated. For example, a taxpayer in the 30 percent marginal tax bracket who itemizes deductions faces a cost of 70 cents per dollar donated. The deductibility of donations implies a tax price of giving of $(1 - t)$ for itemizers, where t is the marginal tax rate that the donor faces, and of 1 for non-itemizers.[14] Given that individual marginal tax rates are not available in the PSID data, we make use of the TAXSIM program from the National Bureau of Economic Research (NBER). TAXSIM is a tax calculator, and we use it to estimate the marginal tax rate t.[15] The PSID gives us a rich set of tax relevant household characteristics, such as state of residence, marital status, itemization status, number of household members, earned income, and various deductible expenditures. Based on the input household characteristics and the federal and state tax codes for the relevant year, TAXSIM estimates the marginal tax rate that we need to calculate the price of giving that each household faces. Previous papers have shown that the tax price of giving negatively affects contributions and is an important determinant of charitable giving (Andreoni et al. [2003]; Yörük [2010]).

[14]The marginal tax rate t depends on both the state and federal marginal tax rates if a charitable tax benefit is allowed in that state. In some states, such as Michigan and Ohio, charitable deductions are not allowed in the state income tax. The Coronavirus Aid, Relief and Economic Security (CARES) Act enacted in March 2020 made changes to charitable deductions and allowed non-itemizers to claim a charitable deduction up to $300 for single filers or $600 for married couples filing joint returns.

[15]For more details on the use of TAXSIM, see https://users.nber.org/ taxsim/taxsim32/.

3.4 Data on other controls

We obtain the number of nonprofit organizations and public charities within each state from the National Center for Charitable Statistics (NCCS) in 2002-2018 and the number of religious congregations within each state from the US Census of Religion (2000 and 2010). These data are combined with those from the US Census to obtain numbers per 1,000 people in each state.

4 Do men and women have different preferences over charitable giving?

Previous literature has suggested that there is a substantial gender difference in preferences over giving. Single women tend to give more and to spread their giving across a wider variety of categories than single men do (Mesch et al. [2015]). This is the case even after controlling for income and demographic characteristics. Andreoni et al. [2003] show that single men's and single women's propensities to give and giving amounts react differently to important variables such as income and the price of giving. Yörük [2010] does not find evidence that men and women exhibit different propensities to give overall or different total giving amounts, but he does find that men and women have significantly different patterns in terms of allocations across different categories. Women are more likely than men to give to organizations in every category except for combined purposes and neighborhood organizations.

Andreoni et al. [2003] and Yörük [2010] also document that married couples exhibit different giving behaviors depending on the decision-making authority within the household. Consistent with the findings for singles, households in which the wife is the decision-making authority tend to spread their giving across different categories, while husband-deciding households concentrate their giving within a smaller number of categories. Andreoni et al. [2003] find that jointly deciding households behave more similarly to husband-deciding households than to wife-deciding households. Yörük [2010] also finds that husband-deciding households have more concentrated giving than wife-deciding households do.

To understand the potentially different preferences of males and females, we compare the

donation patterns of single males and single females. The propensity to give, the amount given, and the share of giving out of income show patterns consistent with those in the previous literature. Women have a higher propensity to give and give more to each category of charitable giving. For the share out of income, women give more than men to all categories except for organizations that improve neighborhoods and communities, as shown in Figure 1.[16] However, only allocations to the religious category and international aid or world peace organizations are significantly different between men and women.

Andreoni et al. [2003] find that women prefer to spread their donations across more types of charitable giving categories, while men tend to concentrate their giving within fewer categories. To examine the gender differences in the concentration of giving, we construct a Herfindahl index, as shown below, following Andreoni et al. [2003] and Yörük [2010]:

$$HI = \sum_{c} s_c^2 \text{ for } c = 1, 2, ...11$$

where s_c is a charitable giving share defined as the amount of money that the household donates to charitable category c divided by the total amount donated by this household in one year. This index is created for households that have made at least one donation. The Herfindahl index equals one if the household chooses to give to only one category of charitable activity, while its lower bound is 0.091, which is its value if the household spreads its money evenly across all 11 categories. Controlling for income, the price of giving, and demographic characteristics, the Herfindahl index for single women is 0.054 points lower than that for single men (the baseline Herfindahl index for men is 0.76), and this difference is statistically significant.

5 Descriptive patterns of charitable giving among married couples

In this section, we present descriptive patterns of charitable giving among married couples and examine the variables that explain their charity choices. Figure 2 shows the average amounts and shares that married couples donate to each category. Average total charitable

[16]The results are very similar when only widowed, divorced, or separated individuals are considered, who may have similar tastes with married individuals (Figure A1).

giving is approximately $1,700 a year, accounting for 1.76% of total family income. Religious donations constitute the largest share, with an average amount of $1,060, followed by donations to organizations with a combination of purposes (e.g., the United Way, the Catholic Charities), donations to help people in need, donations for educational purposes, donations for health care and medical research, and donations to "other" categories. Average donations to the remaining categories are similar, at approximately $50 per year.

Table 2 investigates the factors affecting the donation patterns of married couples. Each column represents the propensity to give, the amount given, and the amount of charitable giving out of family income (budget shares). Of these outcomes, we use the budget shares as our main outcome throughout the paper, following the consumer demand literature (e.g., Deaton and Muellbauer [1980]; Banks et al. [1997]). The results show that more educated couples tend to give more. Churchgoing is an important determinant of donating behavior, which is consistent with the large share of religious giving. As charitable giving is a normal good, an increase in income is associated with larger donations; when family income increases by 1%, the size of donations increases by 0.64%. The coefficient on family income is negative when budget shares are the outcome, and this can be explained by the existence of a nonlinear relationship between charitable giving shares and income levels. List [2011] documents that the relationship between household income and charitable giving as a share of household income is U-shaped. We indeed find such a U-shaped pattern, controlling for basic demographic characteristics, in our data as well.[17] As expected, the tax price of giving negatively affects the propensity to give and donation amounts. These patterns are largely consistent with the findings of previous research.

6 Empirical strategies

This section presents our empirical strategy. In the first subsection, we explain how we construct relative female wages using a Bartik-style approach. Then, we discuss our identifying assumptions in the second subsection and present our empirical specifications in the third

[17]This result can be provided upon request.

subsection.

6.1 Construction of relative wages

We examine how the relative power of spouses influences charitable giving behavior by using relative wages as a proxy for relative power. We use *potential* relative wages at the market (state) level instead of the household level for two reasons. First, the household bargaining model suggests that a woman's bargaining power is determined not only by actual relative wages but also by *potential* relative wages (Aizer [2010]). Second, the actual wages of wives and husbands at the household level are potentially endogeneous. A central issue is omitted variable bias: unobserved heterogeneities in preferences over charitable giving may be correlated with the earnings patterns of households. Reverse causality is also possible if the charitable giving of households affects each spouse's tendency to earn. Therefore, a simple OLS regression of charitable giving on wives' relative wages may yield biased estimates.

We construct a market-level measure of relative wages that reflects only the exogenous demand for female and male labor using a Bartik-style approach (Bartik [1991]; Aizer [2010]). Relying on the fact that men and women specialize in different industries, we interact the initial industrial structure (industrial shares) of a state with the national-level wage for each industry calculated with the focal state excluded.[18] With the inclusion of state fixed effects, we effectively use wage growth variation rather than wage level variation. The identification strategy takes advantage of the fact that wage growth in a certain industry has a stronger influence on states with greater exposure to that industry in the initial period. If the manufacturing sector, which is male-dominated, experiences a positive labor demand shock at the national level, and manufacturing accounts for a large share of male employment in a state, then men in that state will experience a larger increase in wages than men in states with a smaller manufacturing presence.

Following the approach used to construct the relative wages of women (Aizer [2010]; Bertrand et al. [2015]; Shenhav [2021]), we construct our measure of average yearly wages

[18]Table A3 presents industry compositions by gender.

by gender, race, and educational attainment at the state level as follows:

$$\bar{w}_{gresy} = \sum_{j} \gamma_{gresj} w_{-syj}$$

where g indexes gender, r race, e education group (less than college/some college or more), s state, y census year, and j industry.[19] γ_{gresj} is the share of people whose gender, race, education, and state of residence are g, r, e, and s in industry j. It is obtained from the 2000 Census and fixed at its year 2000 value so that our constructed wage measures do not reflect sorting into industries. w_{-syj} is the national average wage in industry j in year y, with the state in which the household is located excluded from the calculation ($-s$). By excluding the focal state, we exclude from our wage measures any changes that are caused by labor supply-side changes (e.g., worker characteristics) in the focal state that may be correlated with charitable giving patterns. w_{-syj} is obtained from the QCEW. Figure 3 depicts the percentage growth in constructed wages between 2002 and 2018 by gender. The different wage growth rates by gender within states generate variation in relative wages.

We construct the relative wages of women as follows. After calculating the average wage $\bar{w}$ for each race-education-state-year cell using the QCEW and Census data for men and women, respectively, we match the potential gender-specific wage to each spouse in our PSID sample of married couples by race (husband race r_h; wife race r_w), education (husband education e_h; wife education e_w), state (s), and year (y). Relative female wages are obtained by dividing the potential female wage ($\bar{w}_{female,r_w e_w sy}$) by the potential male wage ($\bar{w}_{male,r_h e_h sy}$), as shown in the following equation.

$$RelativeFemaleWage_{r_h r_w e_h e_w sy} = \frac{\bar{w}_{female,r_w e_w sy}}{\bar{w}_{male,r_h e_h sy}}$$

Table 3 shows the distributions of our constructed wages and relative wages. The average relative female wage is 0.92, suggesting that women's potential wage is 8 percentage points

[19] We use the 3-digit NAICS industry classification, which results in 86 industries.

lower than that of men on average. The table shows that there is substantial variation in relative wages, ranging from 0.72 at the 1st percentile to 1.18 at the 99th percentile.

6.2 Identifying assumptions

The validity of our Bartik-style wage measures relies on two main underlying assumptions. To obtain unbiased estimates of the impacts of the gender wage gap on charitable giving patterns, the constructed potential wages need to satisfy the relevance and exogeneity assumptions.

The first assumption, relevance, can be tested by examining the relationship between the constructed potential wages and actual observed wages. For our wage measures to be valid, the potential wage constructed using industry shares and national growth must be a strong predictor of the actual observed wages. The first three columns in Table 4 provide evidence of relevance. Our potential wage measures are strongly and positively correlated with the actual observed wages for male, female, and relative wages. The correlations are significant at the 1% level for female wages and relative wages and at the 5% level for male wages.

The second necessary assumption is that our Bartik-style potential wage is exogenous. To make this assumption more credible, we include various fixed effects and state-, race-, and education-specific time trends. The inclusion of these fixed effects and time trends addresses any potentially spurious impacts of relative wages on charitable giving due to differences across states, races, and education levels or time trends specific to them. In addition to the various fixed effects and time trends, as a robustness check, we test whether our estimates are sensitive to state-year-level controls, such as the number of nonprofit organizations and religious congregations, that may be correlated with households' charitable giving patterns. One caveat is that these variables may suffer from reverse causality, potentially biasing all the coefficients in the regression. Therefore, we use specifications with interactions between the initial values of these variables and time fixed effects as additional controls, which capture differential time effects depending on the initial values of the number of nonprofit organizations and religious congregations.

To better understand the potential wage variation, we investigate whether the correla-

tion between potential wages and observed wages is sensitive to various controls. Table A4 shows that our estimated correlation between potential wages and observed wages changes only marginally and is robust to the inclusion of an extensive set of fixed effects, time trends, and other controls. This suggests that the variation in our potential wage measure is not correlated with most of the fixed effects, time trends, or controls. Furthermore, including interactions between the initial number of nonprofits, public charities, and religious congregations per 1,000 people and time fixed effects barely changes the correlation coefficient. Additionally, one may be concerned that our Bartik measures for men and women simply capture a general labor market shock (e.g., a change in attitudes toward working) instead of gender-specific shocks. In that case, the potential wages for either men or women would be predictive of observed opposite-sex wages. However, we do not find such cross effects, as shown in the last two columns of Table 4.

To further understand the identifying variation within potential wages, we estimate Rotemberg weights as proposed by Goldsmith-Pinkham et al. [2020]. These weights quantify the contribution of each industry to the identifying variation. Figure A2 shows the distribution of the industrial contributions to the identifying variation and suggests that no single industry is a dominant source of variation, although there are industries that have higher shares than others. The top 5 industries that contribute to the variation in the potential wages of men are "Professional, Scientific, and Technical Services", "Food Services and Drinking Places", "Computer and Electronic Product Manufacturing", "Securities, Commodity Contracts, and Other Financial Investments and Related Activities", and "Food and Beverage Stores". For women, the top 5 industries contributing to potential wages are "Insurance Carriers and Related Activities", "Food Services and Drinking Places", "Professional, Scientific, and Technical Services", "Private Households", and "Personal and Laundry Services". These results suggest that the important comparisons being made in our setting are comparisons between states with high shares of the abovementioned industries and those with low shares of these industries. Figure A3 shows how the shares of these top 5 industries are distributed geographically. These graphs suggest that we are combining various comparisons by using Bartik-style measures

rather than relying on similar comparisons because the distribution of each top 5 industry is fairly different. In the robustness check section, we investigate whether our estimates are sensitive to each of these industries.[20]

6.3 Empirical specification

To estimate the impact of the relative wages on the charitable giving of married couples, the following equation is used:

$$\begin{aligned} y_{hsy} = \alpha + \beta RelativeFemaleWage_{r_h r_w e_h e_w sy} + \delta X_{hsy} + \gamma_{r_h} + \eta_{r_w} + \pi_{e_h} + \rho_{e_w} \\ + \theta_s + \tau_y + \lambda State_s \times Year_y + \nu Edu_{e_h} \times Year_y + \mu Race_{r_h} \times Year_y + \epsilon_{hsy} \end{aligned} \tag{1}$$

The unit of observation is a household, h, with a married couple in state s and year y. y_{hsy} represents the charitable giving outcomes for household h in state s and year y. $RelativeFemaleWage_{r_h r_w e_h e_w sy}$ is the potential gender wage gap that we constructed with husband race r_h, wife race r_w, husband education e_h, and wife education e_w. X_{hsy} is a vector of various individual and household characteristics that may be related to charitable giving choices. It includes family size, husband's age, husband's age squared, wife's age, wife's age squared, family wealth and family wealth squared. We prefer not to control for variables that could be potential outcomes in our main specification, such as family income, the tax price of giving, and whether the husband or wife is a churchgoer who has attended religious services at least 12 times during a year. Although we prefer not to include potentially bad controls, we do provide results from regressions that include them as controls as a robustness check. γ_{r_h} and η_{r_w} represent race dummies for the husband and the wife, respectively. π_{e_h} and ρ_{e_w} represent education dummies (less than college and at least some college) for the husband and the wife, respectively. We add state fixed effects, θ_s, to control for time-invariant differences between states and year fixed effects, τ_y, to control for national yearly changes in charitable giving. State-specific linear time trends

[20] In general, Bartik-style measures, or shift-share measures, could also be interpreted in the framework of Borusyak et al. [2022], which relies on the assumption of exogenous shocks. However, our setting, which is similar to the canonical Bartik [1991]'s study, is better interpreted with Goldsmith-Pinkham et al. [2020]'s framework because wages are equilibrium objects (Borusyak et al. [2022]).

($State_s \times Year_y$), education-specific time trends ($Edu_{e_h} \times Year_y$), and race-specific time trends ($Race_{r_h} \times Year_y$) are also included.

Note that we estimate the reduced-form impacts of relative female wages, following Aizer [2010] and Shenhav [2021]. This approach allows gender-specific labor market conditions to affect charitable giving patterns through different channels.

7 Results for charitable giving patterns

In this section, we present our findings. We first show the impacts of relative wages on general patterns of charitable giving, including those related to the propensity to give, the total amount given, and the share given out of income. Then, we investigate how relative wages affect each category of charitable giving.

7.1 The impacts on total charitable giving

Table 5 presents the estimated impacts of the relative wages of females on charitable giving among married couples. Three columns in Panel A show the impacts on the propensity to give, the log of the amount given, and the share out of total family income, obtained by estimating Equation 1.[21] Column (1) presents the estimated effect of relative female wages on households' propensity to give. The point estimate indicates that an increase in the relative wages of women by one SD (equivalent to a 9.5 percentage point increase) leads to a 2.1 percentage point (2.7%) increase in the probability of giving, but the estimated impact is statistically insignificant. In Column (2), the estimates imply that a 1 SD increase in the relative wages of women contributes to a 27% increase in the dollar amount of the contributions. Consistent with this result, we also find an increase in share of donations out of family income. Column (3) shows that a 1 SD increase in the relative wages of women induces a 0.37 percentage point increase in the share of donations out of total family income (budget share), which is equivalent to an 18% increase relative to the baseline mean.[22] These results show a consistent pattern: higher relative wages for women cause married couples to give more. These results support our

[21] To be precise, we use ln(Amount + 1) to abstract away from givers' compositional changes.
[22] The share of donations out of family income is expressed as a percentage.

framework's prediction: if women's wages increase relative to men's and if women are more generous than men, the charitable giving patterns of married couples become closer to the women's preferences, and thus married couples donate more.

Panel B in Table 5 shows the results when additional controls, including family income, family income squared, the log price of giving, and churchgoer dummies, are included in the model. The results are consistent with the impacts in Panel A. Even though income and prices are important predictors of charitable giving, we prefer the specification in Panel A because these variables may be affected by relative female wages.[23] We investigate whether family income is affected by relative wages in the section on mechanisms.

7.2 The impacts on different charitable giving categories

Next, we examine the impacts of the relative wages of women on giving to different categories of charities. Table 6 presents the estimated impacts of relative female wages on all 11 charity categories. These results show that among the different charitable giving categories, the budget share for religious giving increases significantly when relative female wages increase. Column (1) shows that a 1 SD increase in the relative wage of women increases the budget share for religious giving by 0.39 percentage points. In contrast, the estimated impacts for the other charity categories (columns 2-11) are consistently negative or close to zero. The results for the specifications with additional controls in Panel B are similar.[24]

These results are consistent with the bargaining power interpretation. Women tend to allocate more to religious giving than men, controlling for family income and basic demographic characteristics, suggesting that women have a stronger preference for giving related to the religious category than men do (Figure 1). Previous literature has also persistently shown that women are more religious than men (James [2003], Maselko and Kubzansky [2006]). Our descriptive statistics for married couples show that women go to church 7 percentage points more frequently than men (Table 1). Given these preferences, we would expect to see a larger

[23] See Angrist and Pischke [2008] for a discussion of *bad controls*.

[24] Table A5 shows the results when the categories are religious giving and secular giving. We show the results for the propensity to give and the log of the amount given in (Table A6).

allocation to religious giving when women gain more power within households due to changes in the labor market. Our results on different categories of charitable giving support this interpretation.

Given that we see an increase in the share of total charitable giving when relative wages rise, the results regarding the increase in religious giving may simply be a mechanical result arising from the increase in total charitable giving. To test this possibility, we also examine the impact of relative wages on the share of giving in each category out of the total amount donated, instead of out of family income. If the increase in religious giving is exactly proportional to the increase in total charitable giving, we should not see any impact on the share of giving in each category out of total donations. Table A7 suggests that the larger allocation to religious giving is not a proportional increase driven solely by the increase in total charitable giving. Families allocate more to religious giving conditional on total charitable giving when relative female wages increase.

As noted earlier, previous literature has suggested that women tend to spread their charitable giving across a greater number of categories than men. In Table A8, we test whether the concentration of giving as measured by a Herfindahl index is influenced by relative female wages. We do not find any significant change in the Herfindahl index when relative female wage changes. The concentration of giving could be explained either by preferences over varieties or as the result of utility-maximizing choices, and it is not easy to separate these two possibilities with the current dataset.[25] Therefore, it is difficult to interpret this result for the Herfindahl index in terms of men's and women's different preferences and bargaining power.

8 Evidence supporting the bargaining power channel

While our findings thus far are consistent with the bargaining power channel, there may be different channels other than bargaining. First, the relative wages of women may change the

[25]For instance, suppose that there are three categories of giving (A, B, and C). Women derive negative utility from giving to B but positive utility from giving to A or C. Suppose that the utility-maximizing outcome is an allocation of (50%,0%,50%). It appears that women have a preference for spreading out their charitable giving, but this is possible even without preferences over varieties. Women would still prefer (100%,0%,0%) to (50%,50%,0%).

total family income, which in turn could affect the household allocations to charitable giving. We rule out this possibility by showing that total family income is not affected by relative female wages. Column (5) in Table 7 shows that relative wages do not affect total family income in a statistically meaningful way. Another possibility is a change in social norms regarding charitable giving when labor market conditions change. If this is the case, we may wrongly attribute the changes in charitable giving to power dynamics within the household when they are actually due to cultural changes arising from labor market transformations. As mentioned earlier, we use a reduced form approach that allows for different mechanisms; therefore, these alternative mechanisms do not invalidate our estimates for the impacts of relative wages on charitable giving. However, the policy implications may be different depending on the primary channels. For instance, if the bargaining channel is important, we would observe similar impacts if there were a policy to enhance women's position in the household (e.g., if the benefit recipients were women). However, if the results are mostly driven by unobserved changes in social norms due to relative wage changes, we would not expect to see similar impacts. To further investigate the bargaining channel, we conduct the following two additional exercises. We also discuss changes in religious activities as another mechanism at the end of the section.

8.1 Decision-making authority

First, we examine the impacts of relative female wages on the decision-making authority within households, which is a good proxy for the bargaining power of spouses. The PSID includes a questionnaire on the decision-making authority regarding charitable giving decisions in the 2003 and 2005 waves. The possible answers are "Male head made most decisions (Husband)", "Wife made most decisions (Wife)", "Mostly decided together (Joint)", and "Each made separate decisions (Separate)". In the first four columns of Table 7, we present the results for whether changes in relative female wages result in changes in decision-making authority regarding charitable giving. The probability of husbands making decisions decreases, and the probability of wives making decisions increases when relative female wages increase. Given that these variables are available in only two years, the estimates are imprecisely estimated,

but the impacts on husband decision making are marginally significant. We find no impacts on joint decision-making or separate decision-making. These results suggest that the bargaining channel is at work. Relative wages influence who makes decisions regarding charitable giving, which results in different charitable giving allocations.

8.2 The impacts of household-level relative income *within households*

Next, we evaluate the impacts of the household-level relative income of wives using the panel structure of the PSID. Empirically, the constructed Bartik-style potential relative wages have very little variation within households. Therefore, the estimated impacts in the previous sections are at the state-year level rather than at the household level. In this section, we examine whether similar effects exist within households using household-level variation in the *actual* income of wives relative to total household income over time. If the bargaining channel is indeed an important pathway through which relative wages affect charitable giving patterns, we would expect to see similar patterns when using household-level variation in relative wages. Specifically, we estimate the following model:

$$y_{hsy} = \alpha + \beta RelativeWifeIncome_{hsy} + \delta X_{hsy} + \theta_s + \tau_y + \lambda_h + \epsilon_{hsy} \tag{2}$$

where h, s, and y indicate household, state, and year, respectively. $RelativeWifeIncome$ is defined as the share of the wife's income out of the sum of the wife's and the husband's income.[26] X_{hsy} is defined as in Equation 1. θ_s and τ_y are state and year fixed effects. λ_h represents the household fixed effects. Therefore, we use variation within households.

The results are presented in Table A9. Panel A presents the model, which is based on the assumption that the impact of the wife's relative income is linear. We find positive and sizable coefficients for total charitable giving and the religious giving shares, but they are imprecisely estimated. There is a possibility that the impact of relative income is nonlinear. To explore

[26]Bertrand et al. [2015] show that the wife's relative income within the household affects labor market participation, marital satisfaction, and the probability of divorce within households.

this possibility, we use a dummy to indicate whether the wife's relative income is greater than one-half in Panel B regressions. We find significantly positive impacts on the share of total charitable giving and of religious giving. Although we cannot directly compare these results with the results using Bartik-style measures because these results are based on the *actual* wife income shares and earlier results are based on *potential* relative wages in the market, the qualitative patterns are consistent and families indeed react to relative income changes.

8.3 Other possible channels

One potential channel that could explain our results is changes in religious activity. Household religious activity, such as churchgoing, may be affected by relative wages, thus increasing the share of charitable giving and of religious giving. The PSID provides information on individuals' churchgoing status in the 2003, 2005, 2011, 2017, and 2019 waves. We define individuals who attend religious services at least once a month (or 12 times a year) as churchgoers, following the definition in Yörük [2010]. We test whether husbands' and wives' churchgoing is affected by relative female wages by estimating Equation 1 with the churchgoing variables as the dependent variables.

The last two columns in Table 7 present the results. Husbands and wives are more likely to be churchgoers when relative female wages increase. There are two possible explanations for these results. First, it is possible that the supply of churches is affected by relative female wages, affecting the intensity of religious activity. Second, given that women have a preference for church attendance (Table 1), an increase in relative wages may lead to more churchgoing among both husbands and wives. Because time allocations are also likely to be affected by the bargaining between spouses, this second channel is still consistent with household bargaining explanations. We test the church supply channel by regressing the number of religious congregations per 1,000 people in the state on relative female wages, state and year fixed effects, and state level controls (composition of the population in terms of education, age, and race, and income level) using data from two US religious censuses (2000 and 2010). The results in Table A10 show that relative wages do not affect the number of religious congregations, leading

us to reject the church supply explanation.

Previous research shows that marriage rates decrease and the quality of marital partners changes when relative female wages increase (Shenhav [2021]; Autor et al. [2019]). One concern associated with these results is that there may be different selection into marriages or marital dissolution when relative female wage changes and our results are driven by such differential selection. In our data, we find a small insignificant negative impact of relative wages on marriage (Table A11). The sign is consistent with the previous literature, but our study period is much shorter than other studies examining the impacts of relative wages on marital outcomes, which may be the reason we find insignificant impacts. This alleviates our concern on selection into marriages.[27] However, we find that there is a significant increase in marital dissolution probabilities. This selection may have affected our main findings. In order to understand whether our results are driven by this selection, we repeat our regressions using stable marriage samples, excluding any individuals who ever experienced being widowed, divorced, and separated in our sample periods. Our results using stable marriages hardly change our main results (Table A12 and Table A13), reassuring us that the results are not solely driven by marital selections.

9 Robustness checks

In this section, we present the results from various robustness checks. In the first subsection, we show that our main findings are robust to adding additional state-year-level controls. In the second subsection, we conduct a Rotemberg weight analysis and investigate the sensitivity of our estimates to different industries. Last, in the third subsection, we test our hypothesis using a different industry shock, exploiting the negative manufacturing shocks in Autor et al. [2019].

[27] Regarding changes in marital partners, if anything, our estimates underestimate the impacts of bargaining power because Shenhav [2021] shows that the quality of marital partners of women improves when relative female wages increase and this is likely to be associated with improved bargaining position of men in the households.

9.1 Additional state-year-level controls

In this subsection, we explore additional state-year-level variables that may be correlated with charitable giving patterns and may confound our findings. Specifically, we investigate the existence of nonprofit organizations, public charities, and religious congregations. We first check whether the relative wages that we constructed have any impacts on these variables. Then, we investigate whether including these variables as controls would change our estimates.

According to the NCCS, more than 1.5 million nonprofit organizations, including public charities, private foundations, and other nonprofit organizations, were registered in the United States in 2016.[28] Public charities make up the largest portion of the nonprofit sector, and they are the most relevant type of nonprofit organization in our context because they receive the most support from the general public. The locations of these organizations may be correlated with the charitable giving patterns of households. For instance, Harrison [2008] shows that the locations of nonprofits are associated with state tax rates. If there is state-year-level variation in these variables that is correlated with relative wages and if that variation affects charitable giving patterns, we may wrongly attribute the impact of nonprofits to relative wages. Similarly, religious congregations may be correlated with relative wages and affect giving patterns.

The results in Table A10 show that relative female wages do not affect the number of nonprofit organizations, public charities, or religious congregations. As a robustness check for the main results, we include these variables as controls in the main specification. Because there is a possibility of reverse causality such that charitable giving patterns affect the concentration of nonprofits or religious organizations, we include these controls via an interaction between their initial values and a set of time fixed effects. These interactions capture time effects that vary with the initial values of the number of nonprofit organizations and religious congregations. Table A14 shows the main results with these additional state-year controls. Including them

[28]The IRS describes public charities and private foundations as follows: "Public charities generally receive a greater portion of their financial support from the general public or governmental units, and have greater interactions with the public. A private foundation, on the other hand, is typically controlled by members of a family or by a small group of individuals, and derives much of its support from a small number of sources and from investment income. Because they are less open to public scrutiny, private foundations are subject to various operating restrictions and to excise taxes for failure to comply with those restrictions."

changes the results very little, indicating that our results are not driven by changes in the number of local nonprofits or religious congregations.

9.2 Sensitivity to each industry

In the previous section on the identifying variation, we estimated Rotemberg weights, which quantify each industry's contribution to the Bartik-style wage measures for men and women (Figure A2). In this section, we show estimates using each industry's share as different instruments and discuss the LATE-like interpretation of the Bartik-style wage measures following Goldsmith-Pinkham et al. [2020]. We show that no single industry drives our results.

Goldsmith-Pinkham et al. [2020] show that Bartik estimators can be decomposed into a weighted sum of the just-identified instrumental variable estimators that use each industry's share as a separate instrument.[29] Because our relative female wage is constructed as a ratio of female Bartik wages to male Bartik wages, it is not possible to directly decompose the relative wage measure. Instead, we decompose the estimators for female wages and male wages, respectively. To do so, we first estimate the following regression:

$$y_{hsy} = \alpha + \beta_m MaleWage_{r_h e_h sy} + \beta_f FemaleWage_{r_w e_w sy} + \delta X_{hsy} + \gamma_{r_h} + \eta_{r_w} + \pi_{e_h} + \rho_{e_w} + \theta_s + \tau_y + \lambda State_s \times Year_y + \nu Edu_{e_h} \times Year_y + \mu Race_{r_h} \times Year_y + \epsilon_{hsy} \quad (3)$$

where all the variables and subscripts are defined as in Equation 1.

Table A15 shows the estimated coefficients β_m and β_f. Male wages have a stronger impact on charitable giving, but the direction is consistent with the results using the female-to-male wage ratios. The shares of total charitable giving and religious giving out of family income increase when female wages increase and when male wages decrease.

Table A16 and Table A17 show the estimated Rotemberg weights and decomposition re-

[29] Goldsmith-Pinkham et al. [2020] mainly focus on an instrumental variables setting but they indicate that their framework still applies to reduced-form settings such as ours. For the estimation of the Rotemberg weights and a further analysis on heterogeneous effects, we treat the constructed Bartik-wage measure as an endogenous variable and each industry shares as an instrument following the note for the reduced-form applications in Goldsmith-Pinkham et al. [2020].

sults for the top 5 industries for men and women, respectively. The estimated Rotemberg weights show that no single industry dominates. The shares for the top 5 industries are 0.59 (0.658/1.118) and 0.56 (0.594/1.106) for men and women, respectively. There are negative weights, but they form only a small share of the overall weights. Panel B in these tables shows that the point estimates obtained when high-weight industries are used as instruments ($\hat{\beta}_k$) are all similar and close to our overall point estimates. This confirms that our results are not driven by any single industry and are not sensitive to specific industries.

9.3 Results using the manufacturing shock in Autor et al. [2019]

Our main results using the Bartik-style wage measures combine variation from different industries. In this section, we test whether our results still hold when using a shock specific to an industry. Specifically, we use a shock to the manufacturing sector arising from China's import penetration (Autor et al. [2019]).

Autor et al. [2019] exploit gender-specific labor demand shocks from increasing international manufacturing competition to show that adverse labor market shocks to relative male earnings negatively affect marriage and fertility in the United States. We use their empirical strategy to examine the effects of gender-specific labor demand shocks from manufacturing competition on charitable giving patterns. Specifically, we estimate the effects of negative manufacturing shocks that affect men and women differently on the charitable giving of households using the following model:

$$\triangle Y_{CZ} = \alpha + \beta_1 \triangle IP_{CZ}^{male} + \beta_2 \triangle IP_{CZ}^{female} + \delta X_{CZ} + \epsilon_{CZ} \tag{4}$$

where $\triangle Y_{CZ}$ is the change in the share of charitable giving out of family income within commuting-zone CZ during 2000-2014.[30] The explanatory variables of interest are the gender-specific components of the trade-induced manufacturing decline in the United States. Given

[30]The PSID groups donations to six categories (youth/family, cultural, neighborhood/community, environment, international aid/world peace, and other purposes) together in the 2001 wave, instead of indicating the amount of charitable giving to each of these categories separately, as in the later waves. We use charitable giving outcomes from 2001-2015 PSID waves and group the last six donation categories together for consistency.

that there is differential industrial specialization between the sexes, we take advantage of negative shocks to manufacturing labor demand, which have distinct effects on men's and women's employment and earnings. $\triangle IP_{CZ}^{male}$ denotes the change in import penetration among male-dominated industries during 2000-2014, and $\triangle IP_{CZ}^{female}$ denotes the change in import penetration among female-dominated industries during 2000-2014.[31] As in Autor et al. [2019], we use the growth of Chinese imports in eight other developed countries as an instrument for the realized penetration of Chinese imports into the United States.[32] We include X_{CZ} to control for baseline covariates for each commuting-zone CZ. These controls include time trends for US census divisions, the lagged share of employment in manufacturing, controls for employment in occupations susceptible to automation and offshoring, and commuting-zone-level demographics, such as race and education.

Table 8 presents the estimated impacts of gender-specific adverse labor demand shocks on the shares of total charitable giving and religious giving among households using two-stage least squares. Autor et al. [2019] document that a one-unit trade shock in our specification is roughly equal to the average decade-level rise in import penetration at the CZ level during the 1990–2014 period. The first column in Table 8 shows that a unit rise in import penetration (i.e., a unit rise in the negative shock to manufacturing labor demand) among female-dominated industries leads to a 2.3 percentage point decrease in the share of total donation out of family income, while a unit shock to male-dominated industries results in a 1.9 percentage point increase. Both of these effects are marginally significant. The second column shows that a one-unit negative demand shock to female-specific industries depresses the share of religious giving out of family income by 2.4 percentage points, whereas a unit negative demand shock to male-specific industries increases the religious giving share by 1.5 percentage points. The directions of these impacts are consistent with our earlier findings using the Bartik-style wage measures. Generally, we do not see meaningful changes in nonreligious categories, although a

[31] $\triangle IP_{CZ}^{male} = \sum_j \frac{(1-f_{CZ,j90})L_{CZ,j90}}{L_{CZ,90}} \triangle IP_j$ and $\triangle IP_{CZ}^{female} = \sum_j \frac{f_{CZ,j90}L_{CZ,j90}}{L_{CZ,90}} \triangle IP_j$ where j indicates industry and $f_{CZ,j90}$ denotes the female share of employment in each industry by commuting zone. For details on how $\triangle IP_j$ is measured, see Autor et al. [2019].

[32] The eight developed countries in our instrument are Australia, Denmark, Finland, Germany, Japan, New Zealand, Spain, and Switzerland.

negative demand shock to male industries has a significant effect on giving to charities in the "combination of purposes" category.[33] These results show a consistent pattern: when labor market conditions become less favorable to women (men), charitable giving shares decrease (increase) within households. That is, even when we use a different labor market shock and different geographic units, we find evidence consistent with our main findings, presented in the previous sections.

10 Conclusion

We investigate the impact of relative female wages on patterns of charitable giving by married couples, using novel and arguably exogenous measures of gender-specific wages. We construct the potential relative wages of women using a Bartik-style approach. Our results show that charitable giving increases as women's relative power within the household increases. In particular, the share of charitable giving to religious organizations significantly increases when the labor market becomes more favorable to women. These results appear to be consistent with the bargaining power interpretation because women tend to give more in general and prefer giving to religious organizations. We show that our results are robust to a wide range of checks, including the addition of state-year-level controls such as the number of nonprofits and religious congregations, the estimation of Rotemberg weights and a heterogeneity analysis, and an analysis using a different labor market shock specific to manufacturing industries.

Although a major share of charitable giving in the United States is from households, how labor market conditions affect household charitable giving has not been sufficiently explored in the literature. Furthermore, even though charitable giving accounts for approximately 2% of household income, it has been largely overlooked in consumption studies in family economics. We shed light on both strands of literature by providing new causal evidence on how relative female wages affect the charitable giving patterns of households. Our results suggest that

[33]We believe that the results for the "combination of purposes" organizations should be interpreted with caution because of the changes in charitable giving categories in the PSID over time. In the 2001 wave of the PSID, six categories (youth/family, cultural, neighborhood/community, environment, international aid/world peace, and other purposes) were grouped as "other", which differs from their treatment in later years. This may have affected reporting patterns, particularly those in the "combination of purposes" category, because this category is defined less specifically than others.

gender-specific shocks to the local labor market and the relative power of spouses are important factors that should be considered when trying to predict households' giving behavior.

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Table 1: Summary statistics for married couples

	Mean	SD
Family income	96872.91	121073.91
Family size	3.41	1.30
Husband age	44.73	9.65
Wife age	43.13	9.96
Husband high school graduate	0.30	0.46
Husband attended college	0.23	0.42
Husband college graduate	0.38	0.49
Wife high school graduate	0.27	0.45
Wife attended college	0.25	0.43
Wife college graduate	0.41	0.49
Husband white	0.77	0.42
Husband black	0.07	0.26
Husband hispanic	0.08	0.27
Wife white	0.78	0.42
Wife black	0.07	0.25
Wife hispanic	0.08	0.27
Husband labor income	57382.34	104209.91
Wife labor income	25966.42	31009.26
Husband is the primary earner	0.72	0.45
Husband churchgoer	0.48	0.37
Wife churchgoer	0.55	0.37
Tax price of giving	0.85	0.14
Obs	25912	

Notes: This table presents summary statistics for married couples whose male head is between 25 and 60 years old. Statistics are weighted using PSID family weights. Note that the churchgoer variables are available only in 2003, 2005, 2011, 2017, and 2019. All income variables ($) are price-adjusted to base year 2002.

Table 2: Determinants of giving among married couples

	(1) Dummy	(2) Ln(Amount+1)	(3) Share (%)
Husband age	0.001	0.014	0.010
	(0.001)	(0.009)	(0.008)
Wife age	0.005***	0.040***	0.033***
	(0.001)	(0.008)	(0.009)
Husband high school graduate	0.058***	0.319**	0.310**
	(0.021)	(0.140)	(0.137)
Husband attended college	0.132***	0.904***	0.796***
	(0.018)	(0.119)	(0.160)
Husband college graduate	0.166***	1.258***	1.053***
	(0.020)	(0.125)	(0.180)
Wife high school graduate	0.146***	0.926***	0.779***
	(0.022)	(0.138)	(0.165)
Wife attended college	0.187***	1.289***	1.183***
	(0.020)	(0.126)	(0.159)
Wife college graduate	0.232***	1.694***	1.500***
	(0.024)	(0.159)	(0.205)
Husband white	0.024	0.359*	0.541**
	(0.025)	(0.201)	(0.259)
Wife white	0.021	0.204	0.026
	(0.022)	(0.166)	(0.192)
Husband black	-0.056	-0.241	0.271
	(0.042)	(0.303)	(0.303)
Wife black	-0.003	0.120	0.014
	(0.031)	(0.201)	(0.315)
Husband hispanic	-0.066***	-0.406***	-0.058
	(0.019)	(0.150)	(0.204)
Wife hispanic	-0.008	-0.083	-0.330**
	(0.025)	(0.156)	(0.164)
Husband churchgoer	0.087***	1.064***	1.461***
	(0.013)	(0.089)	(0.133)
Wife churchgoer	0.126***	1.056***	0.600***
	(0.014)	(0.096)	(0.093)
Family size	0.002	0.068***	0.072**
	(0.003)	(0.024)	(0.035)
Family wealth in $10,000	-0.000*	0.001***	0.003***
	(0.000)	(0.000)	(0.001)
Ln(Family income)	0.068***	0.641***	-1.079***
	(0.009)	(0.051)	(0.146)
Ln(Tax price of giving)	-0.420***	-3.799***	-2.653***
	(0.025)	(0.187)	(0.294)
Year FE	Yes	Yes	Yes
State FE	Yes	Yes	Yes
Baseline Mean	0.789	5.411	2.054
Obs	25,384	25,040	25,033

Notes: This table investigates the factors affecting the donation patterns of married couples. All income variables ($) are price-adjusted to the base year 2002. Note that the churchgoer variables are available only in 2003, 2005, 2011, 2017, and 2019. Observations are weighted by PSID family weights. Standard errors are clustered at the state level. Significance levels: * 10%, ** 5%, ***1%.

Table 3: Summary statistics for the Bartik-style wages

	# of Obs	Mean	SD	p1	p25	p50	p75	p99
Female wage	25659	38321.126	4323.985	29779.080	34060.500	39345.441	41492.742	46854.094
Male wage	25659	41948.876	4947.467	32435.213	37565.965	42555.422	45606.539	52176.402
Female wage/male wage	25659	0.919	0.095	0.724	0.884	0.902	0.938	1.181

Notes: This table presents summary statistics for the female wages, male wages, and relative wages constructed using a Bartik-style approach. Wages ($) are adjusted to base year 2002. Statistics are weighted using PSID family weights.

Table 4: Relationship between potential wages and observed wages

	Correlation with actual wages			Cross-effects	
	Male wage	Female wage	$\frac{\text{Female wage}}{\text{Male wage}}$	Male wage	Female wage
Potential male wage	2.686**			3.069**	0.511
	(1.066)			(1.157)	(0.375)
Potential female wage		1.205***		-1.564	1.315**
		(0.320)		(1.043)	(0.575)
Potential female wage/male wage			0.924***		
			(0.234)		
State FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Race FE	Yes	Yes	Yes	Yes	Yes
Edu FE	Yes	Yes	Yes	Yes	Yes
State time trend	Yes	Yes	Yes	Yes	Yes
Race time trend	Yes	Yes	Yes	Yes	Yes
Edu time trend	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes
Obs	2,281	2,147	4,258	2,110	2,110

Notes: This table presents the correlations between the Bartik-style potential wages and the observed wages. Observed (actual) wages are obtained from the annual labor income data in the PSID. The unit of observation is an education-race-state-year cell. Standard errors are clustered at the state level, and cells are weighted by the PSID family weights within the cell. Controls include family size, family wealth and its square, and the ages of the husband and the wife and their square. Significance levels: * 10%, ** 5%, ***1%.

Table 5: The impacts of relative wages on charitable giving outcomes

	(1)	(2)	(3)
Panel A: Main specification			
	Dummy	Ln(Amount+1)	Share (%)
Female wage/male wage	0.224	2.600**	3.945**
	(0.151)	(1.088)	(1.620)
Additional Controls	No	No	No
Panel B: With additional controls			
	Dummy	Ln(Amount+1)	Share (%)
Female wage/male wage	0.161	2.063**	2.942**
	(0.141)	(0.943)	(1.415)
Additional Controls	Yes	Yes	Yes
State FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Race FE	Yes	Yes	Yes
Edu FE	Yes	Yes	Yes
State time trend	Yes	Yes	Yes
Race time trend	Yes	Yes	Yes
Edu time trend	Yes	Yes	Yes
Controls	Yes	Yes	Yes
Baseline Mean	0.789	5.411	2.054
Obs	25,409	25,064	25,033

Notes: This table presents the impact of relative wages on charitable giving outcomes. The dependent variable is shown in the column headings. Share (%) is calculated by dividing the amount spent on charitable giving by family income and multiplying the result by 100. Controls include family size, family wealth and its square, and the ages of the husband and the wife and their square. Additional controls include family income and its square, the natural log of the price of giving, and churchgoer dummies for the husband and the wife indicating personal attendance at religious services at least once a month. Standard errors are clustered at the state level. Significance levels: * 10%, ** 5%, ***1%.

Table 6: The impact of relative wages on the share of family income given to each category

	Dependent variable: Share (%) of family income allocated to each category of charitable giving										
	(1) Religious	(2) Combo	(3) Needy	(4) Health	(5) Education	(6) Youth/Family	(7) Cultural	(8) Community	(9) Environment	(10) International Aid	(11) Other
Panel A: Main specification											
Female wage/male wage	4.116***	0.003	0.124	-0.053	-0.008	-0.036	-0.075	0.019	-0.042	-0.016	-0.155**
	(1.345)	(0.148)	(0.154)	(0.099)	(0.115)	(0.069)	(0.056)	(0.032)	(0.040)	(0.040)	(0.068)
Additional Controls	No	No	No	No	No	No	No	No	No	No	No
Panel B: With additional controls											
Female wage/male wage	3.268***	-0.039	0.086	-0.057	-0.060	-0.048	-0.080	0.015	-0.043	-0.024	-0.164**
	(1.166)	(0.150)	(0.149)	(0.102)	(0.112)	(0.067)	(0.056)	(0.032)	(0.039)	(0.040)	(0.067)
Additional Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Race FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Edu FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State time trend	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Race time trend	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Edu time trend	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Baseline Mean	1.409	0.190	0.199	0.048	0.075	0.034	0.017	0.012	0.016	0.011	0.048
Obs	25,231	25,270	25,247	25,308	25,328	25,339	25,354	25,358	25,357	25,351	25,363

Notes: This table presents the impact of relative female wages on the share of charitable giving to each category. Shares are calculated by dividing the amount spent on each category by family income and multiplying the result by 100. Controls include family size, family wealth and its square, and the ages of the husband and the wife and their square. Additional controls include family income and its square, the natural log of the price of giving, and churchgoer dummies for the husband and the wife indicating personal attendance at religious services at least once a month. Standard errors are in parentheses and are clustered at the state level. Significance levels: * 10%, ** 5%, ***1%.

Table 7: Mechanism investigation

	Decision-making authority				Family income	Churchgoer	
	Husband	Wife	Joint	Separate	Ln(Family income)	Husband	Wife
Female wage/male wage	-0.412*	0.534	0.016	-0.070	0.374	0.564**	0.621**
	(0.225)	(0.394)	(0.327)	(0.166)	(0.292)	(0.247)	(0.267)
State FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Race FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Edu FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State time trend	No	No	No	No	Yes	Yes	Yes
Race time trend	No	No	No	No	Yes	Yes	Yes
Edu time trend	No	No	No	No	Yes	Yes	Yes
Controls	No	No	No	No	Yes	Yes	Yes
Obs	4,211	4,211	4,211	4,211	25,630	14,097	14,097

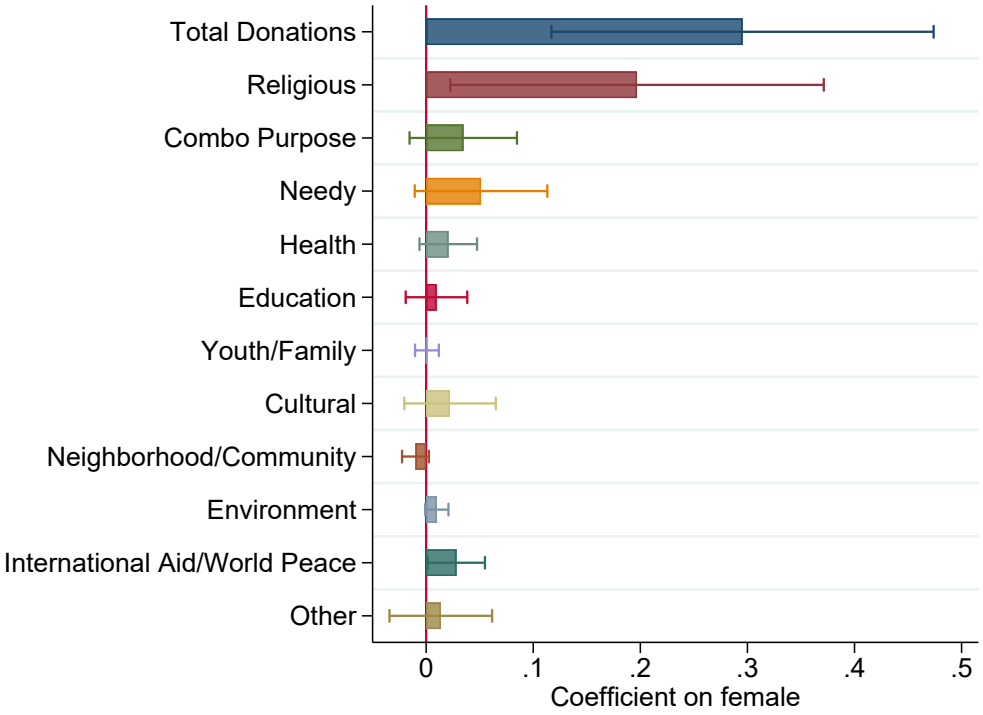
Notes: This table shows the results of an investigation into different potential mechanisms. The dependent variable is shown in the column heading. The question regarding decision-making authority for charitable giving is available only in the 2003 and 2005 waves of the PSID. For the decision-making authority variables, Asian and other races are pooled together due to their small sample sizes. Family income is in $1,000. The churchgoer question is available only in the 2003, 2005, 2011, 2017, and 2019 waves. Churchgoer is a dummy defined for the husband and for the wife indicating personal attendance at religious services at least once a month. Controls include family size, family wealth and its square, and the ages of the husband and the wife and their square. Standard errors are in parentheses and are clustered at the state level. Significance levels: * 10%, ** 5%, ***1%.

Table 8: The impacts of the negative gender-specific manufacturing trade shocks from Autor et al. [2019] on charitable giving shares: Two-stage least squares estimates

	Dependent variable: Change in the share (%) donated out of family income from 2000-2014						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Total	Religious	Combo	Needy	Health	Education	Six other categories
Male industry shock	1.897*	1.465	0.335***	0.151	0.033	0.068	0.040
	(1.088)	(1.019)	(0.119)	(0.120)	(0.040)	(0.108)	(0.045)
Female industry shock	-2.275*	-2.360*	-0.219	0.167	-0.105	-0.053	-0.031
	(1.360)	(1.367)	(0.146)	(0.198)	(0.080)	(0.077)	(0.035)
Obs	287	289	290	289	290	290	290

Notes: This table presents the impact of negative gender-specific manufacturing shocks from increased international manufacturing competition on charitable giving shares. We use the manufacturing shocks from Autor et al. [2019]. The unit of observation is a commuting zone. The six other categories include youth/family, cultural, neighborhood/community, environment, international aid/world peace, and other purposes. The categories are harmonized between the 2001 and 2003 wave of the PSID because of their different categorizations. Standard errors are in parentheses and are clustered at the state level. Significance levels: * 10%, ** 5%, ***1%.

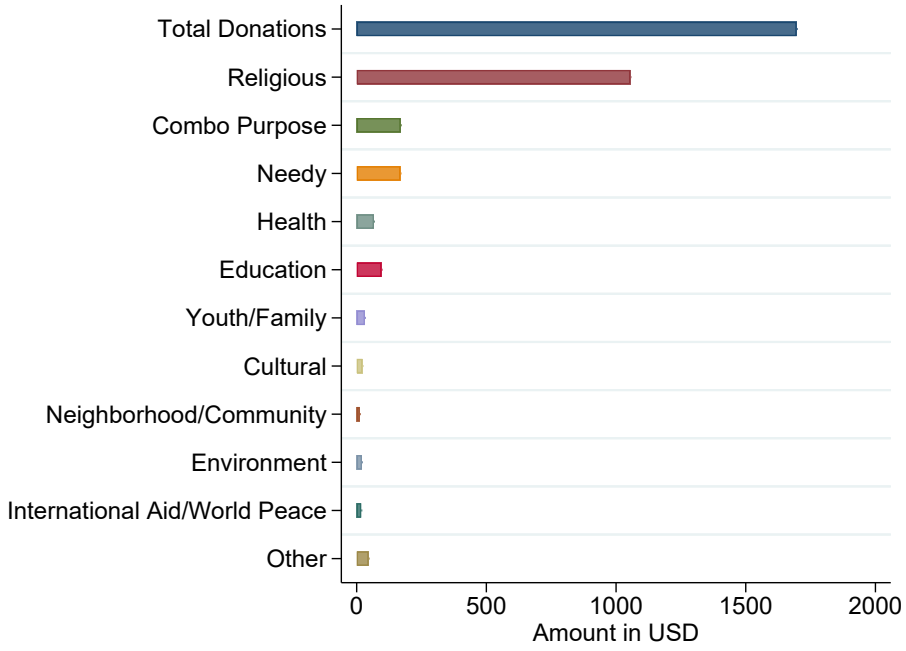
Figure 1: Charitable giving shares (%) among single individuals



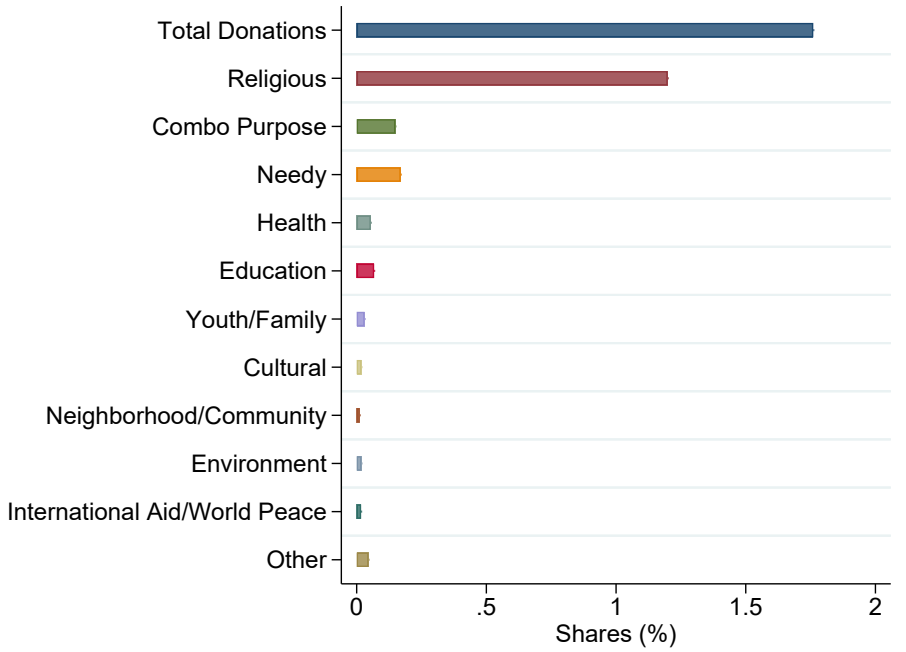
Notes: This figure plots the coefficients on female from the regressions of charitable giving in each category on a female dummy, controlling for race, income, income-squared, wealth, wealth-squared, age, age-squared, education, family size, log price of giving, state fixed effects, and year fixed effects using the sample of single individuals. Single individuals include persons who are never married, widowed, divorced or annulled, or separated. State-specific time trends, education-specific time trends, and race-specific time trends are also included in the regressions. The dependent variables are the percentage shares of giving which are calculated as the amount of giving in each category divided by income multiplied by 100. Observations are weighted by family weights. Standard errors are clustered at the state level. Sources: PSID 2003-2019.

Figure 2: Descriptive statistics for the charitable giving of married couples

(a) Dollar amount of charitable giving



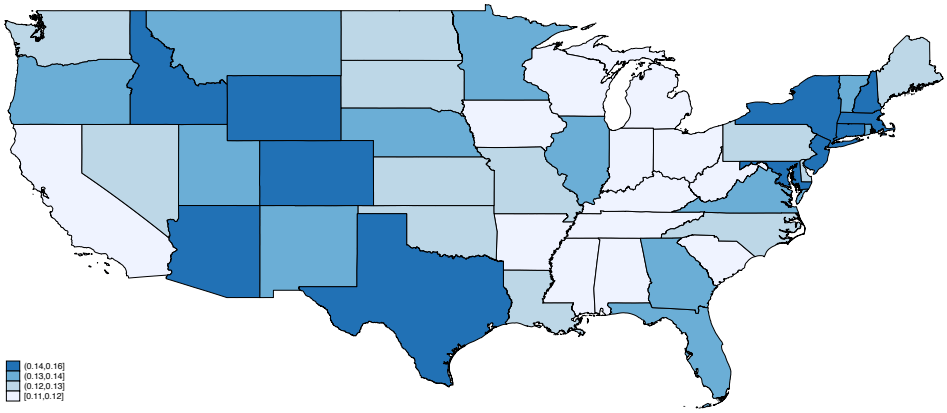
(b) Share of charitable giving out of family income



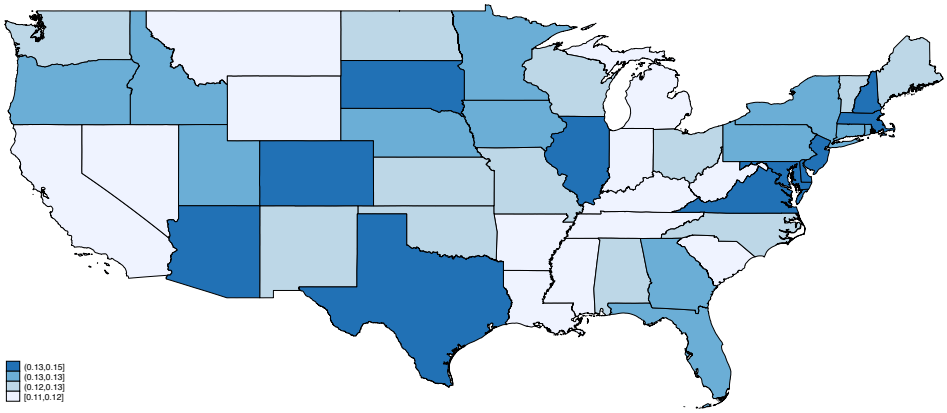
Notes: These figures present summary statistics on charitable giving of married couples. Dollar amounts are price-adjusted to base year 2002. Charitable giving shares are calculated as the amount of giving in each category divided by household income multiplied by 100. Observations are weighted by family weights. Sources: PSID 2003-2019.

Figure 3: Wage growth variation across states by gender

(a) Change in ln($MaleWage$), 2002-2018



(b) Change in ln($FemaleWage$), 2002-2018



Notes: These figures plot the changes in log wages by gender using the constructed Bartik-style wage measures. Wages are price-adjusted to base year 2002. Sources: 2000 US Census and 2002 and 2018 QCEW.

11 Appendix

Table A1: Charitable giving categories in the PSID

Types	**Questions in the PSID**
Religious purposes or spiritual development	Did you [or anyone in your family] make any donations specifically for religious purposes or spiritual development, for example to a church, synagogue, mosque, TV or radio ministry? Please do not include donations to schools, hospitals, and other charities run by religious organizations.
Combination of purposes	Did you [or anyone in your family] donate to any organizations that served a combination of purposes? For example, the United Way, the United Jewish Appeal, the Catholic Charities, or your local community foundation?
Helping people in need of food, shelter, or other basic necessities	Did you [or anyone in your family] make any donations to organizations that help people in need of food, shelter, or other basic necessities?
Health care and medical research	Did you [or anyone in your family] make donations to health care or medical research organizations? For example, to hospitals, nursing homes, mental health facilities, cancer, heart and lung associations, or telethons?
Educational purposes	Did you [or anyone in your family] make donations towards educational purposes? For example, to colleges, grade schools, PTAs, libraries, or scholarship funds? Please do not include direct tuition payments for you or other family members.
Youth and family services	Did you [or anyone in your family] make donations to organizations that provide youth or family services? Such as to scouting, boys' and girls' clubs, sports leagues, Big Brothers or Sisters, foster care, or family counseling?
Arts, culture, or ethnic awareness	Did you [or anyone in your family] make donations to organizations that support or promote the arts, culture, or ethnic awareness? Such as, to museum, theatre, orchestra, public broadcasting, or ethnic cultural awareness?
Improving neighborhoods and communities	Did you [or anyone in your family] make donations to organizations that improve neighborhoods and communities? Such as, to community associations or service clubs?
Preserving the environment	Did you [or anyone in your family] make donations to organizations that preserve the environment? Such as, for conservation efforts, animal protection, or parks?
International aid or promote world peace	Did you [or anyone in your family] make donations to organizations that provide international aid or promote world peace? Such as, international children's funds, disaster relief, or human rights?
Others	Did you [or anyone in your family] make donations of money, assets, or property to charitable organizations with purposes other than those we just talked about?

Table A2: Summary statistics

	Single Males		Single Females		Married Couples	
	Mean	SD	Mean	SD	Mean	SD
Family income	43948.00	91954.13	34958.62	35568.66	96872.91	121073.91
Family size	1.24	0.68	1.41	0.86	3.41	1.30
Male age	40.46	10.82	.	.	44.73	9.65
Female age	.	.	43.70	11.06	43.13	9.96
Male high school graduate	0.36	0.48	.	.	0.30	0.46
Male attended college	0.25	0.43	.	.	0.23	0.42
Male college graduate	0.32	0.46	.	.	0.38	0.49
Female high school graduate	.	.	0.28	0.45	0.27	0.45
Female attended college	.	.	0.29	0.46	0.25	0.43
Female college graduate	.	.	0.33	0.47	0.41	0.49
Male white	0.68	0.47	.	.	0.77	0.42
Male back	0.21	0.41	.	.	0.07	0.26
Male hispanic	0.05	0.22	.	.	0.08	0.27
Female white	.	.	0.64	0.48	0.78	0.42
Female black	.	.	0.26	0.44	0.07	0.25
Female hispanic	.	.	0.06	0.23	0.08	0.27
Male labor income	33694.52	41055.20	.	.	57382.34	104209.91
Female labor income	.	.	27598.23	32083.95	25966.42	31009.26
Male is the primary earner	.	.	.	.	0.72	0.45
Male churchgoer	0.28	0.33	.	.	0.48	0.37
Female churchgoer	.	.	0.42	0.36	0.55	0.37
Tax price of giving	0.94	0.12	0.93	0.12	0.85	0.14
Obs		9,103		9,618		25,912

Notes: This table presents summary statistics for single males, single females, and married couples. This sample includes single individuals aged between 25 and 60 years old and married couples whose male head is between 25 and 60 years old. Statistics are weighted using PSID family weights. Note that the churchgoing variables are available only in 2003, 2005, 2011, 2017, and 2019 waves. All amount variables ($) are adjusted to base year 2002.

Table A3: Industry composition by gender (%)

	Men	Women
Construction	12.07	1.49
Professional, Scientific, and Technical Services	5.51	5.50
Food Services and Drinking Places	5.09	6.68
Educational Services	4.72	11.96
Administrative and Support Services	3.61	3.41
Transportation Equipment Manufacturing	2.65	1.00
Repair and Maintenance	2.62	0.43
Merchant Wholesalers, Durable Goods	2.46	1.13
Food and Beverage Stores	2.35	2.89
Justice, Public Order, and Safety Activities	2.29	1.30
Truck Transportation	2.14	0.40
Broadcasting (Except Internet), Telecommunications, Data Processing, Hosting, and Related Services, Other Information Services	2.05	1.91
Motor Vehicle and Parts Dealers	1.93	0.57
Merchant Wholesalers, Nondurable Goods, Wholesale Electronic Markets and Agents and Brokers	1.88	1.06
Hospitals	1.79	6.27
Computer and Electronic Product Manufacturing	1.71	1.15
Fabricated Metal Product Manufacturing	1.70	0.54
National Security and International Affairs	1.53	0.53
Machinery Manufacturing	1.52	0.51
Ambulatory Health Care Services	1.44	5.68
Amusement, Gambling, and Recreation Industries	1.38	1.28
Food Manufacturing	1.35	0.99
Monetary Authorities-Central Bank, Credit Intermediation and Related Activities	1.32	3.19
Utilities	1.30	0.43
Real Estate	1.28	1.54
Insurance Carriers and Related Activities	1.21	2.45
General Merchandise Stores	1.19	2.85
Building Material and Garden Equipment and Supplies Dealers	1.16	0.57
Crop Production	1.16	0.40
Chemical Manufacturing	1.07	0.63
Religious, Grantmaking, Civic, Professional, and Similar Organizations	1.05	1.66
Executive, Legislative, and Other General Government Support	0.99	1.33
Accommodation	0.94	1.48
Primary Metal Manufacturing	0.86	0.17
Securities, Commodities, Funds, Trusts, and Other Financial Investments	0.86	0.71
Electronics and Appliance Stores	0.85	0.46
Plastics and Rubber Products Manufacturing	0.83	0.49
Miscellaneous Manufacturing	0.82	0.75
Printing and Related Support Activities	0.78	0.52
Postal Service	0.76	0.58
Personal and Laundry Services	0.73	2.10
Textile Mills, Textile Product Mills, Apparel Manufacturing	0.73	1.22
Furniture and Related Product Manufacturing	0.70	0.33
Miscellaneous Store Retailers	0.68	1.24
Publishing Industries (Except Internet)	0.68	0.81
Wood Product Manufacturing	0.67	0.18
Support Activities for Transportation	0.64	0.26
Paper Manufacturing	0.64	0.25
Animal Production	0.63	0.20
Transit and Ground Passenger Transportation	0.63	0.32
Nonmetallic Mineral Product Manufacturing	0.58	0.20
Sporting Goods, Hobby, Book, and Music Stores	0.56	0.64
Air Transportation	0.55	0.44
Electrical Equipment, Appliance, and Component Manufacturing	0.53	0.36
Nursing and Residential Care Facilities	0.51	2.91
Couriers and Messengers	0.51	0.17
Furniture and Home Furnishings Stores	0.50	0.43
Performing Arts, Spectator Sports, and Related Industries	0.49	0.42
Clothing and Clothing Accessories Stores	0.48	1.26
Social Assistance	0.48	3.68
Rental and Leasing Services	0.44	0.30
Health and Personal Care Stores	0.43	1.01
Nonstore Retailers	0.42	0.58
Waste Management and Remediation Services	0.41	0.09
Administration Of Economic Programs and Space Research	0.41	0.46
Rail Transportation	0.37	0.04
Gasoline Stations	0.34	0.37
Motion Picture and Sound Recording Industries	0.34	0.23
Mining (Except Oil and Gas)	0.31	0.03
Warehousing and Storage	0.30	0.14
Support Activities for Mining	0.27	0.06
Administration Of Human Resource Programs	0.26	0.75
Beverage and Tobacco Product Manufacturing	0.25	0.09
Forestry and Logging	0.22	0.03
Administration Of Environmental Quality and Housing Programs	0.20	0.14
Petroleum and Coal Products Manufacturing	0.19	0.05
Support Activities for Agriculture and Forestry	0.12	0.06
Museums, Art Galleries, Historical Sites, and Similar Institutions	0.11	0.15
Fishing, Hunting, and Trapping	0.09	0.01
Private Households	0.08	0.91
Oil and Gas Extraction	0.07	0.02
Water Transportation	0.06	0.02
Leather and Allied Product Manufacturing	0.06	0.08
Management Of Companies and Enterprises	0.04	0.06
Pipeline Transportation	0.04	0.01
Scenic and Sightseeing Transportation	0.03	0.02
Total	100.00	100.00

Note: The share of men and women in each industry is calculated using the sample of employed individuals in the 2000 US Census. We follow 3-digit NAICS industry classifications. Shares are weighted by Census population weights.

Table A4: Correlation between potential wages and observed wages: Sensitivity to controls

	Observed Wage									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Panel A: Male										
Potential male wage	3.749***	3.563***	4.253***	2.656**	4.143***	2.686**	2.696**	2.697**	2.681**	2.692**
	(0.341)	(1.102)	(1.465)	(1.028)	(1.413)	(1.066)	(1.065)	(1.065)	(1.064)	(1.064)
Obs	2,281	2,281	2,259	2,259	2,281	2,281	2,281	2,281	2,281	2,281
Panel B: Female										
Potential female wage	1.816***	1.612***	1.368***	1.207***	1.406***	1.205***	1.205***	1.211***	1.199***	1.214***
	(0.164)	(0.377)	(0.379)	(0.304)	(0.373)	(0.320)	(0.321)	(0.321)	(0.322)	(0.326)
Obs	2,147	2,147	2,112	2,112	2,147	2,147	2,147	2,147	2,147	2,147
Panel C: Relative										
Potential female wage/male wage	0.882***	0.971***	0.984***	0.899***	1.017***	0.924***	0.924***	0.922***	0.924***	0.924***
	(0.081)	(0.223)	(0.244)	(0.239)	(0.238)	(0.234)	(0.234)	(0.235)	(0.235)	(0.235)
Obs	4,258	4,258	4,232	4,232	4,258	4,258	4,258	4,258	4,258	4,258
State FE	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Yr FE	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Race FE	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Edu FE	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
RaceYr FE	No	No	Yes	Yes	No	No	No	No	No	No
EduYr FE	No	No	Yes	Yes	No	No	No	No	No	No
StateYr FE	No	No	Yes	Yes	No	No	No	No	No	No
State time trend	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Race time trend	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Edu time trend	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Controls	No	No	No	Yes	No	Yes	Yes	Yes	Yes	Yes
Yr FE*Base #nonprofit org.per 1,000 pop.	No	No	No	No	No	No	Yes	No	No	Yes
Yr FE*Base #public charities per 1,000 pop.	No	No	No	No	No	No	No	Yes	No	Yes
Yr FE*Base #religious congregations per 1,000 pop.	No	No	No	No	No	No	No	No	Yes	Yes

Notes: This table presents the correlations between the Bartik-style potential wages and observed wages and their sensitivity to the inclusion of controls. Observed (actual) wages are obtained from the annual labor income data in the PSID. The unit of observation is an education-race-state-year cell. Cells are weighted by the PSID family weights within the cell. Controls include family size, family wealth and its square, and the ages of the husband and the wife and their square. Interactions between the initial number of nonprofits, public charities, and religious congregations per 1,000 people in year 2000 and time fixed effects are included in some columns. Standard errors are in parentheses and are clustered at the state level. Significance levels: * 10%, ** 5%, ***1%.

Table A5: The impacts of relative wages on charitable giving (religious vs. non-religious)

	Dep var: Share (%)	
	(1)	(2)
	Religious	Nonreligious
Panel A: Main specification		
Female wage/male wage	4.116***	-0.146
	(1.345)	(0.435)
Additional Controls	No	No
Panel B: With additional controls		
Female wage/male wage	3.268***	-0.290
	(1.166)	(0.414)
Additional Controls	Yes	Yes
State FE	Yes	Yes
Year FE	Yes	Yes
Race FE	Yes	Yes
Edu FE	Yes	Yes
State time trend	Yes	Yes
Race time trend	Yes	Yes
Edu time trend	Yes	Yes
Controls	Yes	Yes
Baseline Mean	1.409	0.646
Obs	25,231	25,102

Notes: This table presents the impact of relative female wages on donations to religious and nonreligious organizations. The dependent variables are shares out of family income. The non-religious category aggregates the following categories: combo, needy, health, education, youth/family, cultural, neighborhood/community, environment, international aid/world peace, and other purposes. Controls include family size, family wealth and its square, and the ages of the husband and the wife and their square. Additional controls include family income and its square, the natural log of the price of giving, and churchgoer dummies for the husband and the wife indicating personal attendance at religious services at least once a month. Observations are weighted by PSID family weights. Standard errors are in parentheses and are clustered at the state level. Significance levels: * 10%, ** 5%, ***1%.

Table A6: The impact of relative wages on charitable giving to each category

	(1) Religious	(2) Combo	(3) Needy	(4) Health	(5) Education	(6) Youth/Family	(7) Cultural	(8) Community	(9) Environment	(10) International Aid	(11) Other
Panel A:Dummy											
Female wage/male wage	0.597**	0.016	-0.080	-0.370***	-0.221*	0.015	-0.207***	-0.084*	-0.158*	-0.085	-0.147*
	(0.247)	(0.151)	(0.167)	(0.118)	(0.122)	(0.100)	(0.075)	(0.043)	(0.086)	(0.070)	(0.074)
Baseline Mean	0.567	0.365	0.358	0.241	0.214	0.162	0.085	0.069	0.098	0.045	0.081
Panel B: Ln(Amount+1)											
Female wage/male wage	5.453***	-0.228	-0.492	-2.047***	-1.260*	-0.032	-1.028***	-0.239	-0.891**	-0.413	-0.929**
	(1.693)	(0.787)	(0.884)	(0.593)	(0.655)	(0.497)	(0.383)	(0.227)	(0.389)	(0.296)	(0.361)
Baseline Mean	3.808	1.984	1.910	1.109	1.049	0.717	0.403	0.298	0.437	0.207	0.421
Panel C: Share (%)											
Female wage/male wage	4.116***	0.003	0.124	-0.053	-0.008	-0.036	-0.075	0.019	-0.042	-0.016	-0.155**
	(1.345)	(0.148)	(0.154)	(0.099)	(0.115)	(0.069)	(0.056)	(0.032)	(0.040)	(0.040)	(0.068)
Baseline Mean	1.409	0.190	0.199	0.048	0.075	0.034	0.017	0.012	0.016	0.011	0.048
State FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Race FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Edu FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State time trend	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Race time trend	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Edu time trend	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Obs	25,231	25,270	25,247	25,308	25,328	25,339	25,354	25,358	25,357	25,351	25,363

Notes: This table presents the impact of relative female wages on the share of family income donated to each category. Shares are calculated by dividing the amount spent on each category by family income and multiplying the result by 100. Controls include family size, family wealth and its square, and the ages of the husband and the wife and their square. Observations are weighted by PSID family weights. Standard errors are in parentheses and are clustered at the state level. Significance levels: * 10%, ** 5%, ***1%.

Table A7: The impact of relative wages on shares of giving to different categories out of total charitable giving

	Dependent variable: Share (%) of total charitable giving allocated to each category of charitable giving										
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	Religious	Combo	Needy	Health	Education	Youth/family	Cultural	Community	Environment	International aid	Other
Female wage/male wage	0.588**	-0.157	-0.079	-0.211**	-0.005	-0.021	-0.042	-0.000	0.014	0.006	-0.093
	(0.251)	(0.106)	(0.120)	(0.101)	(0.054)	(0.047)	(0.026)	(0.024)	(0.040)	(0.027)	(0.059)
State FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Race FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Edu FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State Trend	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Race Trend	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Edu Trend	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Baseline Mean	0.504	0.148	0.141	0.052	0.046	0.027	0.013	0.011	0.015	0.007	0.036
Obs	16,896	16,896	16,896	16,896	16,896	16,896	16,896	16,896	16,896	16,896	16,896

Notes: This table presents the impact of relative female wages on categorical charitable giving out of total charitable giving. The dependent variable is each category's share of total charitable giving. Controls include family size, family wealth and its square, and the ages of the husband and the wife and their square. Observations are weighted by PSID family weights. Standard errors are in parentheses and are clustered at the state level. Significance levels: * 10%, ** 5%, ***1%.

Table A8: The impact of relative wages on the Herfindahl index

	Herfindahl index
Female wage/male wage	0.187
	(0.139)
Race FE	Yes
Edu FE	Yes
State FE	Yes
Year FE	Yes
State time trend	Yes
Race time trend	Yes
Edu time trend	Yes
Controls	Yes
Baseline Mean	0.681
Obs	16,896

Notes: This table presents the impact of relative female wages on the concentration of giving, measured with a Herfindahl index. Controls include family size, family wealth and its square, and the ages of the husband and the wife and their square. Observations are weighted by PSID family weights. Standard errors are in parentheses and are clustered at the state level. Significance levels: * 10%, ** 5%, ***1%.

Table A9: The impact of family level relative income on charitable giving shares

	Dependent variable: share (%) out of family income in each category of charitable giving											
	(1) Total	(2) Religious	(3) Combo	(4) Needy	(5) Health	(6) Education	(7) Youth/Family	(8) Cultural	(9) Community	(10) Environment	(11) International Aid	(12) Other
Panel A												
Relative wife income	0.178	0.147	-0.002	-0.004	0.007	0.041	-0.006	0.002	0.003	0.004	0.007	-0.042
	(0.169)	(0.121)	(0.039)	(0.050)	(0.017)	(0.026)	(0.013)	(0.009)	(0.005)	(0.004)	(0.007)	(0.037)
Panel B												
Relative wife income>0.5	0.170**	0.138**	0.024	0.006	0.003	0.011	0.003	-0.005	-0.000	-0.000	0.003	-0.021
	(0.081)	(0.060)	(0.017)	(0.026)	(0.006)	(0.011)	(0.007)	(0.004)	(0.002)	(0.002)	(0.004)	(0.019)
Family FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Baseline Mean	2.152	1.475	0.199	0.209	0.048	0.081	0.034	0.018	0.013	0.017	0.011	0.052
Obs	20,346	20,516	20,554	20,532	20,580	20,600	20,612	20,623	20,628	20,627	20,628	20,641

Notes: This table presents the impacts of the wife's observed relative income on the donation amount donated out of family income. The wife's relative income is defined as the wife's income divided by the sum of the wife's income and the husband's income. Controls include family size, family wealth and its square, and the ages of the husband and the wife and their square. Observations are weighted by PSID family weights. Standard errors are in parentheses and are clustered at the family level. Significance levels: * 10%, ** 5%, ***1%.

Table A10: The impact of relative wages on the number of local nonprofit organizations, public charities, and religious congregations

	Dependent variable: Total number per 1,000 people		
	(1) Nonprofit organizations	(2) Public charities	(3) Religious congregations
Female wage/Male wage	-0.021	-0.012	-4.748
	(0.020)	(0.016)	(3.276)
State FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Race FE	Yes	Yes	No
Edu FE	Yes	Yes	No
State time trend	Yes	Yes	No
Race time trend	Yes	Yes	No
Edu time trend	Yes	Yes	No
Controls	Yes	Yes	Yes
Obs	25,655	25,655	102

Notes: This table presents the impact of relative wages on nonprofit organizations, public charities, and religious congregations. Nonprofit organizations registered with the IRS include 501(c)(3) public charities, 501(c)(3) private foundations, and other 501(c) nonprofit organizations. Congregations can be churches, mosques, temples, or other meeting places. The state-level numbers of nonprofit organizations and public charities are from the National Center for Charitable Statistics (NCCS). The unit of observation in columns (1) and (2) is the PSID household. Controls in columns (1) and (2) include family size, family wealth and its square, and the ages of the husband and the wife and their square. The state-level number of religious congregations is from the 2000 and 2010 US Religious Census. The unit of observation in column (3) is a state-year cell. Controls in column (3) include state-level characteristics in the calendar years 2000 and 2010, including the composition of the population in terms of gender, age, education, race, and income. Standard errors are in parentheses and are clustered at the state level. Significance levels: * 10%, ** 5%, ***1%.

Table A11: The impacts of relative wages on marriage and dissolution of marriages

	Men		Women	
	Married	Widowed/Divorced/Separated	Married	Widowed/Divorced/Separated
Female wage/Male wage	-0.007	0.178***	-0.009	0.271***
	(0.006)	(0.022)	(0.006)	(0.028)
State FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Race FE	Yes	Yes	Yes	Yes
Edu FE	Yes	Yes	Yes	Yes
State time trend	Yes	Yes	Yes	Yes
Race time trend	Yes	Yes	Yes	Yes
Edu time trend	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes
Obs	45,159	45,159	48,227	48,227

Notes: This table shows the impacts of relative wages on marriage and being widowed, divorced, and separated. The dependent variable is shown in the column heading. Controls include family size, family wealth and its square, and the ages of the husband and the wife and their square. Standard errors are in parentheses and are clustered at the state level. Significance levels: * 10%, ** 5%, ***1%.

Table A12: The impacts of relative wages on charitable giving outcomes (using only stable families)

	(1)	(2)	(3)
Panel A: Main specification			
	Dummy	Ln(Amount+1)	Share (%)
Female wage/male wage	0.223	2.631**	4.136**
	(0.170)	(1.249)	(1.875)
Additional Controls	No	No	No
Panel B: With additional controls			
	Dummy	Ln(Amount+1)	Share (%)
Female wage/male wage	0.153	2.017*	3.053*
	(0.155)	(1.073)	(1.647)
Additional Controls	Yes	Yes	Yes
State FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Race FE	Yes	Yes	Yes
Edu FE	Yes	Yes	Yes
State time trend	Yes	Yes	Yes
Race time trend	Yes	Yes	Yes
Edu time trend	Yes	Yes	Yes
Controls	Yes	Yes	Yes
Baseline Mean	0.811	5.625	2.210
Obs	20,731	20,441	20,418

Notes: This table presents the impact of relative wages on charitable giving outcomes. The dependent variable is shown in the column headings. Share (%) is calculated by dividing the amount spent on charitable giving by family income and multiplying the result by 100. Controls include family size, family wealth and its square, and the ages of the husband and the wife and their square. Additional controls include family income and its square, the natural log of the price of giving, and churchgoer dummies for the husband and the wife indicating personal attendance at religious services at least once a month. Sample includes only stable marriages. Any individual who experienced marital dissolution in any of the years is not included in the sample. Standard errors are clustered at the state level. Significance levels: * 10%, ** 5%, ***1%.

Table A13: The impact of relative wages on the share of family income given to each category (using only stable families)

	Dependent variable: Share (%) of family income allocated to each category of charitable giving										
	(1) Religious	(2) Combo	(3) Needy	(4) Health	(5) Education	(6) Youth/Family	(7) Cultural	(8) Community	(9) Environment	(10) International Aid	(11) Other
Panel A: Main specification											
Female wage/male wage	4.177***	0.068	0.014	-0.042	0.046	0.006	0.002	0.024	-0.038	-0.012	-0.160**
	(1.521)	(0.158)	(0.173)	(0.110)	(0.129)	(0.072)	(0.059)	(0.041)	(0.042)	(0.048)	(0.075)
Additional Controls	No	No	No	No	No	No	No	No	No	No	No
Panel B: With additional controls											
Female wage/male wage	3.234**	0.019	-0.022	-0.040	-0.007	-0.005	-0.002	0.020	-0.039	-0.021	-0.169**
	(1.332)	(0.159)	(0.163)	(0.112)	(0.122)	(0.069)	(0.056)	(0.040)	(0.041)	(0.048)	(0.074)
Additional Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Race FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Edu FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State time trend	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Race time trend	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Edu time trend	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Baseline Mean	1.532	0.200	0.209	0.050	0.082	0.035	0.018	0.013	0.016	0.012	0.049
Obs	20,586	20,619	20,599	20,646	20,667	20,675	20,690	20,691	20,691	20,687	20,695

Notes: This table presents the impact of relative female wages on the share of charitable giving to each category. Shares are calculated by dividing the amount spent on each category by family income and multiplying the result by 100. Controls include family size, family wealth and its square, and the ages of the husband and the wife and their square. Additional controls include family income and its square, the natural log of the price of giving, and churchgoer dummies for the husband and the wife indicating personal attendance at religious services at least once a month. Sample includes only stable marriages. Any individual who experienced marital dissolution in any of the years is not included in the sample. Standard errors are in parentheses and are clustered at the state level. Significance levels: * 10%, ** 5%, ***1%.

Table A14: The impact of relative wages on the shares of family income given to each category (with additional state-year-level controls)

	Dependent variable: Share (%) of family income allocated to each category of charitable giving											
	(1) Total	(2) Religious	(3) Combo	(4) Needy	(5) Health	(6) Education	(7) Youth/Family	(8) Cultural	(9) Community	(10) Environment	(11) International Aid	(12) Other
Panel A:												
Female wage/male wage	3.951**	4.121***	0.002	0.121	-0.054	-0.008	-0.036	-0.075	0.019	-0.042	-0.016	-0.155**
	(1.618)	(1.344)	(0.148)	(0.154)	(0.099)	(0.116)	(0.069)	(0.056)	(0.033)	(0.040)	(0.040)	(0.068)
Yr FE*Base #nonprofit org. per 1,000 pop.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Yr FE*Base #public charities per 1,000 pop.	No	No	No	No	No	No	No	No	No	No	No	No
Yr FE*Base #religious congregations per 1,000 pop.	No	No	No	No	No	No	No	No	No	No	No	No
Panel B:												
Female wage/male wage	3.942**	4.116***	0.001	0.120	-0.054	-0.007	-0.036	-0.075	0.018	-0.042	-0.016	-0.155**
	(1.620)	(1.346)	(0.148)	(0.155)	(0.099)	(0.116)	(0.069)	(0.056)	(0.032)	(0.040)	(0.040)	(0.067)
Yr FE*Base #nonprofit org. per 1,000 pop.	No	No	No	No	No	No	No	No	No	No	No	No
Yr FE*Base #public charities per 1,000 pop.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Yr FE*Base #religious congregations per 1,000 pop.	No	No	No	No	No	No	No	No	No	No	No	No
Panel C:												
Female wage/male wage	3.950**	4.119***	0.003	0.126	-0.055	-0.006	-0.036	-0.075	0.019	-0.042	-0.017	-0.155**
	(1.608)	(1.341)	(0.146)	(0.152)	(0.100)	(0.115)	(0.069)	(0.055)	(0.032)	(0.040)	(0.040)	(0.067)
Yr FE*Base #nonprofit org. per 1,000 pop.	No	No	No	No	No	No	No	No	No	No	No	No
Yr FE*Base #public charities per 1,000 pop.	No	No	No	No	No	No	No	No	No	No	No	No
Yr FE*Base #religious congregations per 1,000 pop.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Panel D:												
Female wage/male wage	3.945**	4.114***	0.005	0.121	-0.058	-0.006	-0.035	-0.074	0.018	-0.042	-0.017	-0.155**
	(1.611)	(1.345)	(0.145)	(0.153)	(0.100)	(0.115)	(0.069)	(0.055)	(0.032)	(0.040)	(0.040)	(0.067)
Yr FE*Base #nonprofit org. per 1,000 pop.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Yr FE*Base #public charities per 1,000 pop.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Yr FE*Base #religious congregations per 1,000 pop.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Baseline Mean	2.054	1.409	0.190	0.199	0.048	0.075	0.034	0.017	0.012	0.016	0.011	0.048
Obs	25,033	25,231	25,270	25,247	25,308	25,328	25,339	25,354	25,358	25,357	25,351	25,363

Notes: This table presents the impact of relative female wages on the share of donations given to each category when additional state-year level controls are included. Shares are calculated by dividing the amount spent on each category by family income and multiplying the result by 100. Controls include family size, family wealth and its square, and the ages of the husband and the wife and their square. Observations are weighted by PSID family weights. Standard errors are in parentheses and are clustered at the state level. Significance levels: * 10%, ** 5%, ***1%.

Table A15: The impact of male wages and female wages on the shares of family income given to each category

	Dependent variable: Share (%) of family income allocated to each category of charitable giving											
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Total	Religious	Combo	Needy	Health	Education	Youth/Family	Cultural	Community	Environment	International Aid	Other
Male wage	-0.141**	-0.133***	-0.001	-0.009*	0.002	-0.005	0.001	0.002	-0.001	0.001	0.001	0.003
	(0.056)	(0.047)	(0.005)	(0.004)	(0.003)	(0.003)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)	(0.002)
Female wage	0.040	0.047	0.000	0.004	0.001	-0.004	0.000	0.000	0.001	-0.002**	0.002	-0.006
	(0.033)	(0.034)	(0.004)	(0.006)	(0.003)	(0.004)	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.004)
State FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Race FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Edu FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State time trend	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Race time trend	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Edu time trend	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Baseline Mean	2.054	1.409	0.190	0.199	0.048	0.075	0.034	0.017	0.012	0.016	0.011	0.048
Obs	25,033	25,231	25,270	25,247	25,308	25,328	25,339	25,354	25,358	25,357	25,351	25,363

Notes: This table presents the impact of male and female wages on the share of family income allocated to each category. Wages are in $1,000. Shares are calculated by dividing the amount spent on each category by family income and multiplying the result by 100. Controls include family size, family wealth and its square, and the ages of the husband and the wife and their square. Observations are weighted by PSID family weights. Standard errors are in parentheses and are clustered at the state level. Significance levels: * 10%, ** 5%, ***1%.

Table A16: Summary of Rotemberg weights for male potential wages

Panel A: Negative and positive weights			
	Sum	Mean	Share
Negative	-0.118	-0.004	0.095
Positive	1.118	0.020	0.905
Panel B: Top 5 Rotemberg weight industries			
	$\hat{\alpha}_k$	$\hat{\beta}_k$	95 % CI
Professional, Scientific, and Technical Services	0.261	-0.109	[-0.24, 0.07]
Food Services and Drinking Places	0.143	-0.081	[-0.32, 0.16]
Computer and Electronic Product Manufacturing	0.132	-0.153	[-0.98, 0.06]
Securities, Commodity Contracts, and Other Financial Investments and Related Activities	0.066	-0.144	[-0.22, -0.07]
Food and Beverage Stores	0.056	-0.167	[-0.33, 0.06]

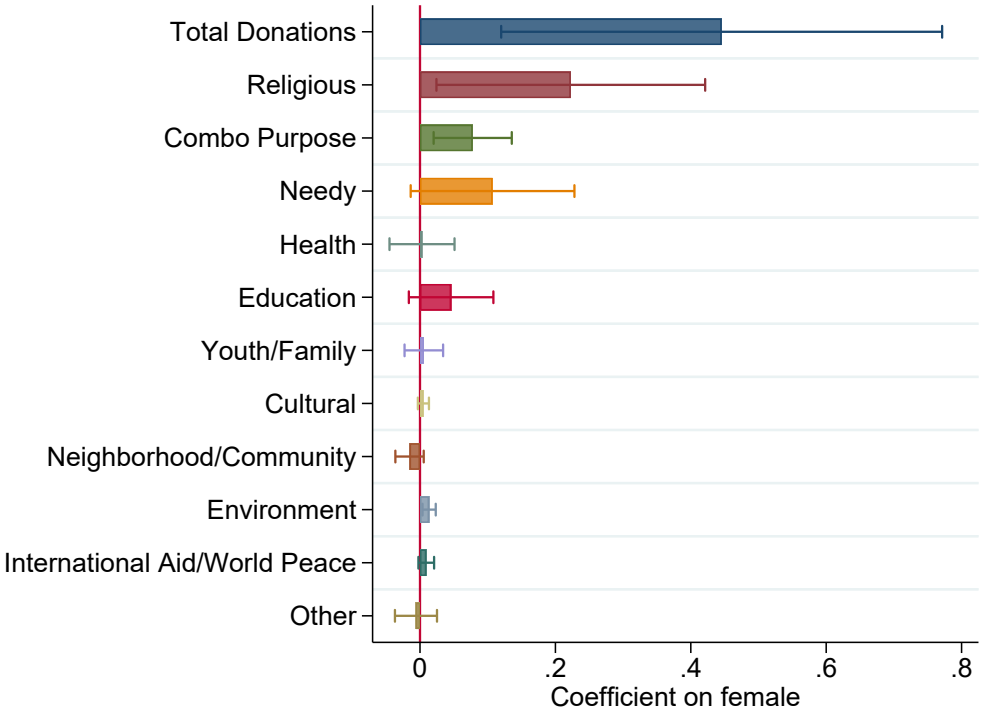
Notes: This table presents statistics on the Rotemberg weights for the male industry shares. Following Goldsmith-Pinkham et al. [2020], we report the aggregated weights, calculated by aggregating a given industry across years. Panel A reports the shares and sums of the positive and negative weights. Panel B reports the top five industries according to the Rotemberg weights (α_k). $\hat{\beta}_k$ is the coefficient from the just-identified regression, and the 95% confidence interval is the weak instrument robust confidence interval calculated using the method from Chernozhukov and Hansen [2008].

Table A17: Summary of Rotemberg weights for female potential wages

Panel A: Negative and positive weights			
	Sum	Mean	Share
Negative	-0.060	-0.002	0.054
Positive	1.060	0.019	0.946
Panel B: Top 5 Rotemberg weight industries			
	$\hat{\alpha}_k$	$\hat{\beta}_k$	95 % CI
Insurance Carriers and Related Activities	0.179	0.084	[-0.27, 0.44]
Food Services and Drinking Places	0.173	0.123	[-0.02, 0.28]
Professional, Scientific, and Technical Services	0.102	0.097	[-0.10, 0.33]
Private Households	0.073	0.207	[-0.13, 0.43]
Personal and Laundry Services	0.067	-0.043	[-0.45, 0.18]

Notes: This table presents statistics on the Rotemberg weights for female industry shares. Following Goldsmith-Pinkham et al. [2020], we report the aggregated weights, calculated by aggregating a given industry across years. Panel A reports the shares and sums of the positive and negative weights. Panel B reports the top five industries according to the Rotemberg weights (α_k). $\hat{\beta}_k$ is the coefficient from the just-identified regression, and the 95% confidence interval is the weak instrument robust confidence interval calculated using the method from Chernozhukov and Hansen [2008].

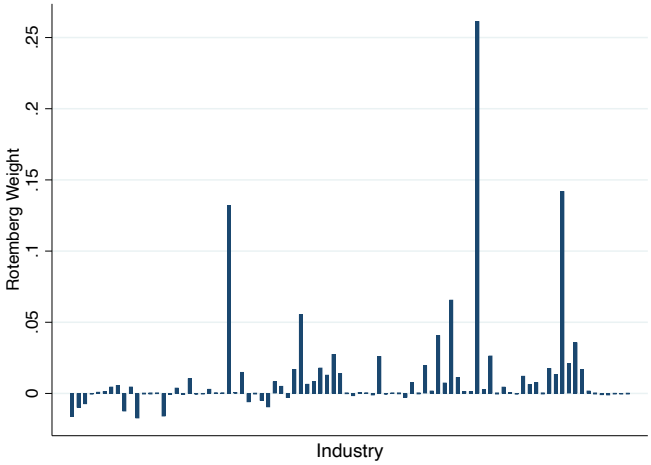
Figure A1: Charitable giving shares (%) of widowed, divorced, or separated individuals



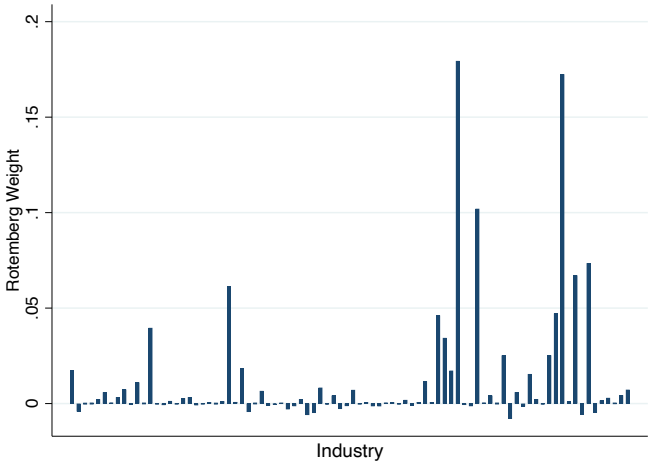
Notes: This figure plots the coefficients of female from the regressions of charitable giving in each category on a female dummy, controlling for race, income, income-squared, wealth, wealth-squared, age, age-squared, education, family size, log price of giving, state fixed effects, and year fixed effects using the sample of single individuals. State-specific time trends, education-specific time trends, and race-specific time trends are also included in the regressions. This sample includes widowed, divorced or annulled, and separated individuals whose ages are between 25 and 60 years old. The dependent variables are the percentage shares of giving which are calculated by dividing the amount spent on each category by family income and multiplying the result by 100. Observations are weighted by family weights. Standard errors are clustered at the state level. Sources: PSID 2003-2019.

Figure A2: Rotemberg weights

(a) Men



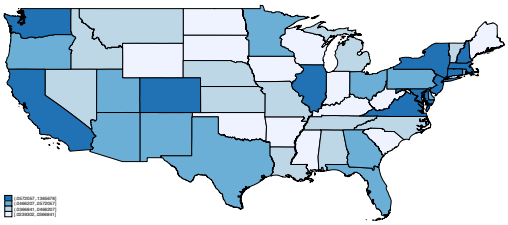
(b) Women



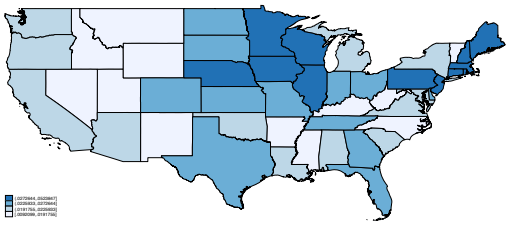
Notes: This figure presents estimated Rotemberg weights for each industry by gender. The top 5 industries for males are Professional, Scientific, and Technical Services (26.1%), Food Services and Drinking Places (14.3%), Computer and Electronic Product Manufacturing (13.2%), Securities, Commodity Contracts, and Other Financial Investments and Related Activities (6.6%), and Food and Beverage Stores (5.6%). The top 5 industries for females are Insurance Carriers and Related Activities (17.9%), Food Services and Drinking Places (17.3%), Professional, Scientific, and Technical Services (10.2%), Private Households (7.3%), and Personal and Laundry Services (6.7%).

Figure A3: The geographical distribution of the top 5 industry shares for men and women

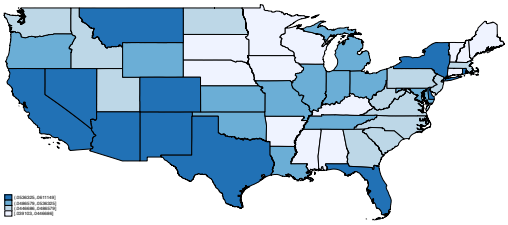
Male. Professional, Scientific, and Technical Services



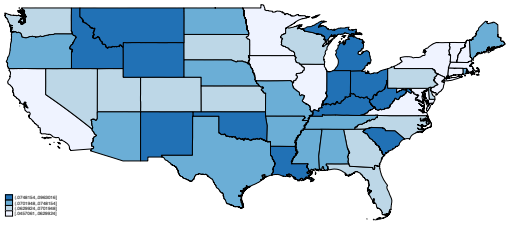
Female. Insurance Carriers and Related Activities



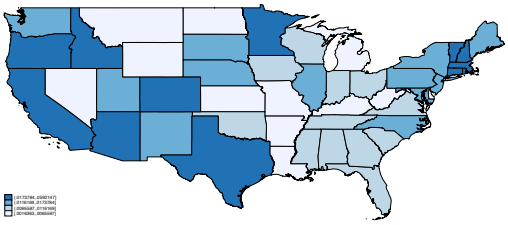
Male. Food Services and Drinking Places



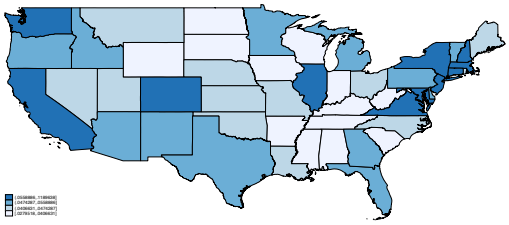
Female. Food Services and Drinking Places



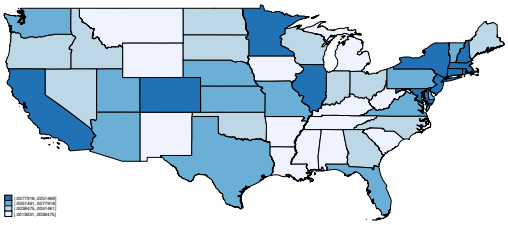
Male. Computer and Electronic Product Manufacturing



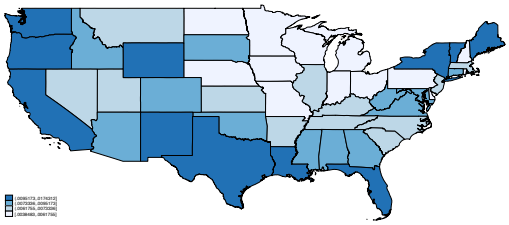
Female. Professional, Scientific, and Technical Services



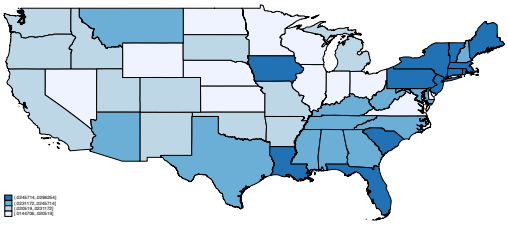
Male. Securities, Commodity Contracts, and Other Financial Investments and Related Activities



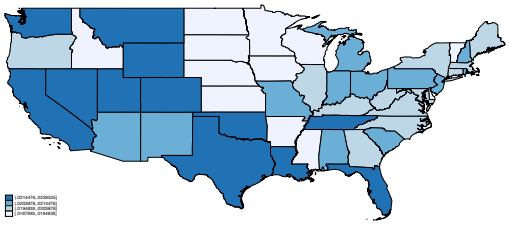
Female. Private Households



Male. Food and Beverage Stores



Female. Personal and Laundry Services



Notes: These figures depict the geographical distribution of the top 5 industries' shares for men and women. Figures in the left column are for men and those in the right column are for women.