# Swaying Gender Norms Around Women's Work in Indonesia: Evidence from an Online Intervention 

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#### Abstract

How to influence social norms that drive behavior in relation to women's participation in employment is not well understood. We report results from an online survey and intervention with over 4000 Indonesian men and women. We first describe social norms in relation to married women with children participating in the labor market in Indonesia. Our data show that respondents underestimate women's support for working women and the level of support among men for sharing childcare. Respondents report that the support of mothers and mothers-in-law is most important when deciding whether the wife in the household works. We then experimentally test whether providing information to individuals on i) women's level of support for women with children working outside the home; ii) husband's support for sharing day-to-day childcare with wives; and iii) support for working women amongst older women (mothers' and mothers-inlaw's generation) changes men and women's willingness to support women's employment outside the home. Providing the above information increases the probability of men (women) choosing a career mentoring course for their wives (themselves) by about $26 \%(23 \%)$. Information beyond women's level of support for working women is found to have an insignificant impact, although there is suggestive evidence that information on support among older women shapes younger women's attitudes. We find no heterogeneity of treatment impact with respect to the direction and extent of individuals' original misperceptions. Results from a sub-sample who made hypothetical rather than real reward choices showed significant social desirability bias which was not evident when real reward choices were made.


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## 1. INTRODUCTION

Gender norms, defined as societal informal rules about appropriate or acceptable behavior, hinder female opportunities, choices, and achievements across the globe. (See for example Alesina et al., 2013; Fernandez 2013; Bertrand et al., 2015; and Jayachandran, 2021.) The reluctance of women to work when they are married and have young children is likely due to social norms that emphasize the role of women as mothers and carers. While governments can try to change social norms through public messaging, there is relatively little known about how effective such campaigns are and how best to influence such norms. Lack of information on the benefits of women working is one plausible explanation for such norms, but interventions providing information to families to change social norms related to married women's labor force participation have had limited success. Dean and Jayachandran (2019) and McKelway (2021) evaluate interventions in India which highlighted female employment opportunities and/or the benefits of female employment. Both found very little change in the acceptability of women working. ${ }^{1}$ Inaccurate perceptions of support among peers' is another possible explanation. Bursztyn et al (2020) show that correcting underestimates of the extent to which male peers support women working outside the home can increase men's support for working women and increase women's labor force participation. ${ }^{2}$ Aloud et al. (2020), also in Saudi Arabia, find that informing female students of the labor market aspirations of their peers increases expectations about their own labor force participation.

In this paper we build on the literature examining the role of misperceptions of support among peers. We report the results of two data collection exercises. First, an online survey which was designed to measure and enhance our understanding of social norms around women's work in Indonesia. Specifically, we collected information from approximately 500 female and 500 male respondents in metropolitan areas across Indonesia on their behavior (whether female respondents and wives of male respondents work outside the home), personal attitudes (level of support for women working) and injunctive norms (incentivized estimates of the extent to which others are supportive of women working). To better understand the motivations that underpin such norms, we also collected information on the concerns that men and women have if the wife works outside of home.

We find that respondents' estimates of the level of support among men for married women with children working outside the home for pay are relatively accurate (unlike Bursztyn et al., 2020), but both men

[^2]and women significantly underestimate the extent of women's support. Men and women also underestimate the extent of support among men for sharing day-to-day childcare responsibilities. ${ }^{3}$ Information on which reference groups' opinions are most important to respondents when deciding whether to work (for women) or, to support their wives working (for men) shows that both men and women are highly concerned about the views of their mothers and mothers-in-law when deciding whether they (women) or their wives (men) work.

These results underpin the online intervention which we subsequently conducted with the more than 4000 respondents in our second online survey. In our three treatment arms we expose male and female participants to information on the extent of support:

1) among women for women with children working;
2) among men for parents sharing childcare; and
3) among older women (in their mother's/mother-in-law's generation) for women with children working.

We have three treatment arms and one control group. Treatment group 1 receives only the first information listed above - on the extent of support among women for women with children working; Treatment group 2 receive the first two types of information; and Treatment group 3 receives all three types of information.

The interventions significantly increase both men and women's support for working women $-43 \%$ of participants in the treatment arms chose to select an online career mentoring course for themselves (female respondents) or their wives (male respondents) over a shopping voucher of equal value, compared to $34 \%$ in the control group. There is suggestive evidence that the provision of the additional information on men's childcare sharing norms and mothers' attitudes towards working women further increased working women's interest in their career -this information further increased their choice of the career mentoring course by 5.7 percentage points ( $16 \%$ ) but this difference was only marginally statistically significantly different ( $\mathrm{p}=0.11$ ) from the effect of just providing the information about women's support for working women. Men whose wives were not currently working were 6.5 percentage points ( $21 \%$ ) more likely to choose a career mentoring course for their wives over a shopping voucher but this difference was statistically insignificant ( $\mathrm{p}=0.18$ ). The additional information on the level of support amongst women in their mothers' and mothers-in-laws' generation did not further increase men's support.

[^3]Heterogeneity analysis rejects a model of norm formation in which the further one's own perceptions of the social norm are from that which is revealed to them, the greater the adjustment in one's attitude. Rather, being made aware that there is a high level of support for working women appears to uniformly increase men's support for working women, regardless of initial expectations. The level of support increases both for those who under-estimated and over-estimated the level of support and doesn't vary with the magnitude of the perception error.

We make several contributions to the literature. First, we contribute to the small but growing literature which uses field experiments to examine the impacts of interventions that address misperceptions about others' beliefs in relation to women's employment. While interventions to "correct" misperceptions about others' beliefs have been frequently used to study voting behavior and income redistribution preferences (see Bursztyn and Yang, 2022 for a review), to our knowledge only Bursztyn et al (2020) and Aloud et a. (2020) have experimentally examined inaccuracies in perceptions of support for women's work, both in Saudi Arabia and among male neighbors and female students, respectively. ${ }^{4}$ We build on this evidence and test its effectiveness in a different cultural context - Southeast Asia which is home to almost 700 million people and is very distinct from the Middle Eastern context of previous work. While still largely more socially conservative than Western nations, female labor force participation in Southeast Asia is considerably higher than in the Middle East and women generally have more freedoms, even in Muslim majority Indonesia.

Second, it is the first paper of which we are aware which explores whether information on women's attitudes can be harnessed to change men's attitudes. ${ }^{5}$ We explore whether making participants (men and women) aware of their misperceptions of women's support for working women changes attitudes.

Third, in addition to norms around the acceptability of women working, we seek to address the strong norms around women being responsible for childcare. We do this by expanding the type of information provided to include information on attitudes to the sharing of childcare.

Fourth, our intervention also incorporates information on mothers and mothers-in-law's support for working women as these groups were identified by respondents as being the most important reference groups whose views are important to the female labor force participation decision.

[^4]Further, the paper demonstrates that a light touch online intervention, as opposed to a more costly in person intervention can impact social norms. Previous literature has cast doubt on the effectiveness of light touch interventions may not be effective. For example, Dean and Jayachandran (2019) and McKelway (2021) found no effect on changing family support of women's employment after lighttouch interventions which showed videos to family members highlighting the non-monetary benefits of women's employment and female employment opportunities. That in our case such a light touch, online intervention was able to significantly increase the extent of support for working women is good news for governments and other policy bodies seeking to increase women's labor force participation. If accurately targeted to address existing misperceptions, our results suggest that less costly online campaigns can successfully sway norms. Although our research does not provide evidence on the longevity of such a change, that we were able to change norms in the short run suggests that repeated exposure to such messaging is likely to change an existing norm, at least for the duration of such messaging campaigns. Work by Field et al (2021) suggests that norms changed in the short run tend to have longer run impacts. Bursztyn et al. (2020) found that the change in perceptions of norms evoked by their intervention, continued to affect perceptions three to five months after exposure.

Although we are unable to examine whether the change in norms leads to changes in labor force participation, extrapolating from Bursztyn et al. (2020) suggests that our intervention could result in an increase in female labor force participation as large as 6 percentage points ( $12 \%$ ) from the current FLFP rate of $53 \%$. That is, an extra 3.5 million women working with an estimated consequent increase in annual GDP growth of approximately $0.67 \%$. ${ }^{6}$

Finally, the paper makes a methodological contribution by demonstrating that real stakes outcome measures are needed to evaluate changes in norms. Twenty percent of our respondents were asked to make a hypothetical choice between the career-mentoring course and the shopping voucher. Unlike the real reward choices, hypothetical choices were significantly and overwhelmingly swayed by socialdesirability bias. Individuals who were the most prone to social desirability bias - measured via a 5point Crowne and Marlowe (1960) scale - were 28 percentage points ( $72 \%$ of the control mean) more likely to choose the socially-desirable career-mentoring course than those with the lowest social desirability bias scores when the choice was hypothetical. In contrast, when the stakes were real, social desirability bias had an insignificant effect on respondent choices. In the absence of real stakes the interventions would have appeared ineffective.

[^5]
## 2. CONTEXT AND DATA COLLECTION

Female labor force participation in Indonesia has remained relatively constant over the past two decades with around $50 \%$ of women working, even with concomitant large increases in women's educational attainment and the service sectors. ${ }^{7}$ Previous research in Indonesia has shown that women's economic participation is hindered by marriage and childcare responsibilities (for example, Cameron et al. 2017, 2019 for Indonesia). To the extent that data on Indonesian social norms were available prior to our study, they suggest that norms in relation to women's work are very conservative. For example, Indonesian men have a similar tolerance to women working as Saudi Arabian men and are less tolerant than Indian men. ${ }^{8}$ And data on attitudes to women's work from the World Value Surveys show that $76 \%$ of Indonesians agree with the statement that men have more right to a job than women, with women being only slightly ( 2 ppts ) less likely to agree with this statement than men. Women and men, even young adults, continue to strongly conform to social norms that emphasize women's childcare and domestic responsibilities because women are perceived as being better at care-taking (YouGov \& Investing in Women, 2020). In a qualitative study of 40 young adults in Greater Jakarta and Surabaya, Setyonaluri et al. (2021) found that such persistent social norms often stem from perceptions about kodrat, or God's will when defining gender roles. Participants in their study see women working for pay as positive, but as long as it is done to support husbands and women do not 'neglect' their responsibility at home. ${ }^{9}$

Our first online survey covers 1,050 respondents ( $50 \%$ male, $50 \%$ female) residing in large urban centers throughout Indonesia. ${ }^{10}$ The aim of the first survey was to measure social norms and people's perceptions of these norms. We targeted respondents who were 18 to 40 years old, with at least a junior secondary education and who were married with at least one child aged under 18 years and living with their spouse. We focus on respondents with at least junior secondary school education as research has shown that women with this level of education have the most discretion over whether they work or not and so

[^6]are more likely to be able to have their behavior influenced. ${ }^{11}$ The sample was constructed such that $75 \%$ of both male and female respondents were high school educated and $25 \%$ tertiary educated (to roughly reflect the coverage of these groups in the Indonesian population). The survey collected demographic information (including age, gender, number of children, own and spousal work status) and information on respondents' attitudes and perceptions of social norms.

Specifically, we collected information on norms in relation to the extent of support for a) female labor force participation: "Are you supportive of married women with children under 12 working for pay outside the home?"; and b) sharing of childcare between husband and wife: "How supportive are you of husbands sharing day-to-day childcare duties with their wives?".

We also elicited incentivized estimates of what proportion of married men and married women are supportive of the above behaviors. These estimates were incentivized by paying approximately USD25 to respondents who made the most accurate estimate. The difference between the reported population response/social norm and the individually reported perception of social norms in both domains generates a measure of the extent of misperceptions about the social norm.

The second survey collected similar information from 4,478 similarly selected respondents (female, male 50:50). The information intervention was embedded in the survey just prior to survey exit. The intervention is detailed further below in Section 3. ${ }^{12}$

## 3. EVALUATION DESIGN

### 3.1 Theory of Change

The theory of change that underpins the intervention is illustrated in Figure A1. Social norms reflect people's perceptions of the attitudes of others in society. Informing individuals of inaccuracies in their perceptions of others' attitudes should cause updating of their perceptions and as individuals' behavior is theorised to be determined, in part, by social norms, the updating of such norms should result in

[^7]behavioral change. Over time this will create a self-reinforcing loop in which others observe the changed behavior and update their perceptions and change their behavior.

Bursztyn et al. (2020) present a simple theoretical model of labor force decisions in a world where acting against a social norm is stigmatized. There are assumed to be two types of agent - those who are supportive of women working (type A) and those who are not supportive of women working (B) and agents hold (incorrect) beliefs, $q$, about the share of the population who are type A.

Individual $i$ makes the decision whether to (allow his spouses to) work $-s_{i} \in(A, B)$ - which maximizes his/her utility, where utility is given by:

$$
U_{i}\left(s_{i}\right)=y \cdot I_{\left\{s_{i}=A\right\}}-c_{i} \cdot I_{\left\{s_{i} \neq t_{i}\right\}}+\left[a q P r_{j}\left(t_{i}=A \mid s_{i}\right)+a(1-q)\left(1-P r_{j}\left(t_{i}=A \mid s_{i}\right)\right)\right]
$$

where $y$ is the extra income from deciding to (allow their wife to) work; $c_{i}$ is the psychic cost of making a decision incompatible with one's own beliefs; and the third term captures the cost to utility, $a$, of the stigma of acting against the norm of society's agent $j$ who observes his/her decision.

They then show that if a sufficiently large shift in beliefs, $q$, occurs, the new equilibrium will see an increase in the number of women working.

### 3.2 Intervention Design

Respondents were randomly divided into four groups - a control group and three treatment groups with the treatment groups receiving information designed to influence their social norms. The design of the interventions reflects the results of the first survey and, as discussed above, consist of the provision of the following information:

1) The extent of women's support for women with school-aged children working for pay outside the home [reflecting the underestimates among men and women of the level of women's support found in the first survey];
2) The extent of men's support for childcare being shared among husbands and wives [reflecting the underestimates among men and women of the level of men's support in the first survey]; and
3) The extent of older women's (from the respondents' mothers' generation) support for women with school-aged children working for pay outside the home [reflecting the concern about mothers' and mothers-in-law's support found in the first survey]. ${ }^{13}$
[^8]The control group received no such information. Figure A2 in the appendix shows the format in which this information was presented to each treatment group.

Our main outcome measure is respondents' choices as to whether to receive payment for their participation in the form of an online career mentoring course or an online shopping voucher of equal value. Respondents were told that about one in every three participants in the survey would be randomly selected to receive a reward for participating in the research project (and that they would be told at the end of the survey whether they had been selected for the reward). They were then asked to indicate whether they would prefer to receive:

- Free access to an online career mentoring course with practical career advice from HR professionals for female participants or the wives of male respondents. The course was designed to equip participants with the skills to create a CV, write a cover letter, prepare for a job interview, and create a LinkedIn profile. The course was valued at Rp100,000 (USD6.5) ${ }^{14}$; or
- a Rp100,000 convenience store shopping voucher.

Choosing the career mentoring course is taken to indicate support for their own (for female respondents) or their wife's (for male respondents) labor force participation. A comparison of this variable across the control and treatment groups provides an estimate of the interventions' impacts. ${ }^{15}$

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## 4. WOMEN'S WORK AND SOCIAL NORMS

## Social Context

$81 \%$ of the women in our sample worked (compared to almost all men). ${ }^{16}$ Only $41 \%$ of working women worked entirely from home. $47 \%$ of female respondents who worked were wage workers, with the remainder being self-employed with no employees (37\%), self-employed with employees (7\%) or casual or family workers $(9 \%)$. If we define the formal sector to consist of wage workers and selfemployed businesses with staff, $54 \%$ of working women in our sample are employed in the formal sector. The formal sector is known to not be particularly family friendly, Cameron et al. (2019).

Among female respondents who are not working or looking for work, $76 \%$ reported that they were unable to do so because of childcare - they had either chosen to look after their children or couldn't find anyone else to look after them. A further $20 \%$ reported that they were not working as their husband didn't want them to. These findings support the conjecture that there is considerable scope for interventions to increase female labor force participation, either through the provision of childcare or, as is our focus below, by changing social norms around women's work and childcare responsibilities.

## Social norms around women's work

Conservative social norms aside, there was substantial support reported for women with children under 12 working outside the home for pay $-75 \%$ of female respondents reported being supportive and $63 \%$ of male respondents. ${ }^{17}$

All respondents were asked to nominate up to three reasons for not supporting women with children under 12 working for pay outside the home. Figure 1 shows that the most often reported reason men give (reported by $22 \%$ of respondents) is that women's role is to care for their children, whereas women most often report that finding someone to look after their children is difficult. $16 \%$ of both male and women respondents report that working will result in a mother neglecting her family duties.

Female (male) respondents were also asked who, among a list of family members and social contacts, would not be supportive of them (their wife) working for pay outside the home. The most oft-cited category was mothers ( $16 \%$ for female respondents; $15 \%$ for male respondents). Mothers-in-law came a close second at $12 \%$ for female respondents and $14 \%$ for male respondents. $98 \%$ ( $85 \%$ ) of women (men) report that it is important to them to have their mother's support. Having their mothers-in-law's support was important to $84 \%$ of both men and women.

[^10]Figure 2 shows that the most significant concerns women face when they decide to work is that others will think that their husband is not able to financially provide for his family $(34 \%$, or $45 \%$ if added to those reporting that others will think the family is in financial need); that others will think that they don't respect their husband (20\%) and that they will be viewed as neglecting their family ( $21 \%$ ). Only $5 \%$ reported that they will themselves not be respected by others. Interestingly, for this better educated group of women in Muslim-majority Indonesia, only 4\% reported being concerned that others will view them as not following their religious traditions.

## Misperceptions about Social Norms Pertaining to Married Women Working

Figure 3 shows the level of support reported for women with children under 12 working for pay outside the home and the estimated (perceived) level of support amongst peers. Female (male) respondents were asked to think of women who are similar to themselves (their wife) in terms of having children, their level of education and religion, and to estimate "Out of 100, how many of these women do you think are supportive of wives with children under 12 years working for pay outside the home?". While the actual level of support reported among respondents was $76 \%$, the mean (incentivized) estimate of the level of support by women was however $67 \%$ - an underestimate of 9 percentage points; and men estimated that $59 \%$ of women are supportive - an even larger underestimate of 17 percentage points.

The left hand set of bars in the same figure show men's support for women working for pay outside the home. Both men and women estimate this level of support amongst men ( $61 \%$ ) relatively accurately. The average estimate of the level of male support among male respondents is $59 \%$ of men, an underestimate of just 2 percentage points. Women overestimate the level of support among men by 3 percentage points.

The data hence suggest that there is scope to influence gender norms in favor of working women by providing information about the greater than expected support among women. There is however little scope for an intervention to influence gender norms by providing information on men's support for working women (a la Bursztyn et al., 2020). This result underscores the importance of formative research to ensure intervention design reflects the cultural context.

## Misperceptions about Social Norms Pertaining to Sharing of Childcare

A similar range of questions were asked about the level of support among men and women for husbands and wives sharing day-to-day childcare duties. The professed support for husbands sharing day-to-day childcare responsibilities with wives - for example, feeding the child, bathing and dressing the child, taking the child from/to school, as well as monitoring child's nap times, playtimes, and other activities

- is very high with $90 \%$ of men and $95 \%$ of women being supportive (although in practice most of the childcare is performed by wives). ${ }^{18}$

Figure 4 shows that both men and women substantially underestimate the high level of support amongst their peers for shared childcare (e.g. men estimate that $65 \%$ of men support sharing childcare duties). This points to scope for an information intervention that tells people about the level of support in the community for shared childcare to be effective.

## Social Desirability Bias

One concern with reporting of attitudes and norms is that the reports may reflect experimenter demand effects. That is, respondents might be more likely to report friendlier attitudes towards working women, to experimenters who are likely to be in favor of women working. To ascertain the extent to which this is a problem, we collected information on a 5 -item social desirability scale following Crowne and Marlowe (1960) and Hays et al. (1989). This module asked respondents whether they have several too-good-to-be-true traits such as being always courteous even to people who are disagreeable, never taking advantage of others, being always forgiving, being never resentful and being always a good listener. We combine these variables to construct a social desirability index. The social desirability index ranges in value from 0 to 5 with an average score of 3.36.

## 5. INTERVENTION RESULTS

## Summary Statistics and Tests of Balance

The demographic characteristics of respondents in the second survey are similar to the first. The average age of respondents is 30.5 years. $92 \%$ of respondents are Muslim. Almost all men work ( $99 \%$ ), while $83 \%$ of women work. Wives of male respondents are considerably less likely to be working (53\%) than female respondents.

Respondents were randomly allocated across treatment arms (with stratification by gender; education; and whether the voucher choice was real or hypothetical). ${ }^{19}$ Table 1 provides summary statistics and tests of balance. $69 \%$ of respondents have a mother who works and $92 \%$ knew children when they were growing up whose mothers worked. $75 \%$ of female respondents reported that they were supportive of married women with children under the age of 12 working for pay outside the home (compared to $76 \%$

[^11]in the first survey), and $63 \%$ of male respondents were supportive (compared to $61 \%$ in the first survey). $75 \%$ of respondents reported that their mother is supportive of the above.

Importantly for the analysis of the impacts of the information interventions, the control and treatment arms are well balanced. Only two variables differ across arms, with the differences being relatively small and statistically significant only at the $10 \%$ level.

## Estimating the Impact of the Information Interventions

To estimate the impact of the provision of information on social norms, we estimate regressions of the following form:

$$
\begin{equation*}
Y_{i}=\alpha+\beta T_{i}+\gamma_{1} X_{i}+\varepsilon_{i} \tag{1}
\end{equation*}
$$

where $Y_{i}$ is the outcome variable (choice of online career mentoring); $T_{i}$ is a vector of treatment arm indicators (relative to the omitted control group); $X_{i}$ is a vector of control variables (gender, education, social desirability bias index) and $\varepsilon_{i}$ are robust standard errors.

Table 2 shows the results of estimating equation $1 .{ }^{20}$ Column 1 presents results for the entire sample, Columns 2 and 3 present them for female and male respondents, respectively. The treatments significantly increase the probability of respondents choosing to be compensated for their time by receipt of the online career mentoring course, rather than the shopping voucher. This is the case in all treatment arms (relative to control). Respondents are between 7 and 10 percentage points more likely to choose the career mentoring course. This is a $20 \%$ to $29 \%$ increase over the control mean of 0.343 . Although the point estimates of the interventions' impacts increase from 0.067 in treatment 1 through to 0.98 in treatment 3 , they are not statistically significantly different from one another. The impacts on men are larger than for women for treatments 1 and 2 but slightly smaller in treatment 3 . The only difference across treatment arms that approaches statistical significance is the difference between treatments 1 and 3 for women. The point estimate for the impact of treatment arm 3 is 5.1 percentage points larger than for Treatment arm $1(\mathrm{p}=0.12)$. This is suggestive that information on men's support for shared childcare and mothers support for working women may have additional salience for women.

Columns 4 to 6 present results for the sample down by whether the woman (female respondent/wife of male respondent) is working or not. These results are informative as to whether the treatments are likely to increase women's labor force participation. The point estimates are uniformly larger in the sample

[^12]where the woman is not working at the time of the survey. The interventions increase the probability of the career mentoring course being selected by 8.2 to 12.1 percentage points. These are very large impacts ( $27 \%$ to $39 \%$ ). Column 5 reports the results for female respondents and Column 6 for male respondents. The result is being driven by the impact on male respondents who have a non-working wife. These men are $8.2(26 \%)$ to $14.7(47 \%)$ percentage points more likely to choose the career mentoring course for their wife than an online shopping voucher. The point estimates are largest for male respondents in treatment 2 (where respondents receive information on social norms about men's support for sharing childcare responsibilities in addition to information on women's support for married women with children working), suggesting that the information on the extent of support among their male peers for shared childcare increased their support for their wife working beyond the impact of the information on women's support for working women, but not statistically significantly so.

The treatment impacts for non-working female respondents are statistically insignificant. The point estimates are however similar in magnitude to those estimated over all women so this may reflect the lack of precision associated with estimating this specification over a much-reduced sample ( $\mathrm{N}=307$ ).

Columns 7 to 9 report results for the sub-sample where the women are working. Here the results are being driven by the working female respondents. Being exposed to treatments 2 and 3 increases the probability of a female respondent who works selecting the career mentoring course by 8.6 to 10.8 percentage points.

In terms of the control variables, tertiary education appears to play little role in respondents' choices. Only tertiary educated men who are married to a working woman are more likely to choose the career monitoring than non-tertiary educated men with working wives ( 7 ppts ). Social desirability bias did not affect the reward choice in these real reward interventions.

Panel B in Table 2 reports results where the treatment impacts are restricted to be equal across treatment arms. Large treatment impacts are detected for all groups other than non-working women.

## Is it necessary to use real reward payoffs?

Table 3 presents results where we pool the respondents who were asked to make a real choice as to whether to receive the career mentoring course or the shopping voucher ( $80 \%$ of all respondents) and those who were asked to make a hypothetical choice. Two of Qualtrics panel partners who supply Qualtrics with respondents would not allow us to randomly select some respondents to receive a reward as this went against their contract with respondents. As those making the hypothetical choice were not randomly selected, Table A2 in the appendix compares the characteristics of respondents in these panels with the other respondents. The respondents who are given the hypothetical choice are demographically very similar to the other respondents. They however report themselves and their family members
(spouses and mothers) as being more supportive of women working and husbands sharing daily childcare. We hence control for these variables in some of the specifications.

Columns (1)-(4) of Table 3 report results for the entire sample (men and women). Column 1 shows that all else equal, participants faced with a hypothetical choice were 7.9 percentage points more likely to choose the career mentoring course than participants who were making a real choice. Column 2 adds a control for social desirability bias. It shows that those social desirability bias increases the chance of choosing the career mentoring course. In Column 3 we interact the social desirability bias measure with whether the choice was hypothetical or not. The interaction term is strongly statistically significant ( $\mathrm{p}<0.01$ ). Participants who are most concerned about appearing to behave in a socially desirable way (social desirability index $=5$ ) are 28 percentage points $(72 \%)$ more likely to choose the career mentoring course than those who are the least concerned (social desirability index $=0$ ) if their choice is hypothetical. Social desirability does not affect outcomes in real rewards interventions. The coefficient on the hypothetical variable is now negative and marginally significant ( $\mathrm{p}<0.1$ ). Column 4 adds controls for baseline attitudes which differ across the hypothetical and real rewards games. These variables are all statistically insignificant and the main results are unchanged.

Columns (5) to (8) present the results of estimating the same models on the sample of female respondents and Columns (9) to (12) for male respondents. The results are largely being driven by male respondents (possibly because male respondents may feel more social pressure to support working women than women amongst whom support is already relatively high and who would be seen to be acting in their self-interest).

Table 4 presents the results estimated over only the sub-sample of respondents who made a hypothetical choice. We focus on male respondents here as they are the most affected by the interaction of social desirability bias and hypothetical stakes. All treatment effects are statistically insignificant when the outcome choice is hypothetical. The coefficients are mainly small and, in some cases, negative. Only the coefficients on treatments 1 and 2 for men with non-working wives approach the magnitude of the estimates over the real reward sample. Hence, the use of a real, meaningful outcome choice is essential to the identification of intervention impacts. Note that the choice needn't have real world consequences with $100 \%$ probability. In our case offering a $33 \%$ probability of the choice being real created sufficient salience for the decision to be taken more seriously.

## The Role of Misperceptions

To further explore the way in which the interventions affected participant choices, following the previous literature, we examine whether those who underestimated the level of support in the community were more greatly impacted by the interventions (than those who estimated the level of
support correctly or over-estimated it). Figure 5 shows the extent of misperceptions in the three domains of the interventions. The red line shows the actual level of support in the community (as measured in our first survey or the World Values survey for older women's attitudes). All three figures show that there were substantial, and varying, extents of misperceptions in all three domains.

Table 5 presents results where we interact treatment with the extent to which respondents underestimated or overestimated the extent of community support for the social norms relevant to their treatment arm. For respondents in treatment arm 1 we allow the treatment impact to differ with the extent of over or underestimation of support for working women. For respondents in treatment 2 we allow for participants' under/over-estimation of support for working women and for shared childcare to affect the treatment impact. We do the same for respondents in treatment 3 but also allow their under/over-estimate of the extent of mothers' support for working women to affect the treatment impact.

Table 5 shows that there is little relationship between misperceptions of the social norm and the impact of the treatment. The interactions between treatment and misperceptions are insignificant in all cases, except for men in treatment 3 where the coefficient is counterintuitively signed (suggesting that if one underestimated the extent of support from mothers, and so gets a greater positive shock when finding out it is so high, the treatment impact is smaller than if one estimated correctly or over-estimated. $)^{21}$

That the extent of misperceptions had little impact is a surprising result, contrary to the theory of change outlined above and in contrast to the results in Burzstyn et al. (2020) and Aloud et al. (2020). While a demonstration that women's support for working women, men's support for shared childcare and mothers' support for working mothers is greater than many perceive shifted participants' views to also be more supportive, the mechanism does not seem to be via the correction of misperceptions, rather the program impact was similar for people with different estimations of the extent of support. ${ }^{22}$

This result suggests that merely highlighting majority community support can change social norms and behavior across the community. This is a positive finding in the sense that it suggests one doesn't need to worry about the provision of information on a norm reducing support among those who estimate there are higher levels of support than the prevailing norm. Rather it seems that a demonstration of strong community support for a behavior (i.e., women with children working) encourages increases in support among those with lower levels of personal support while at the same time reaffirming the views of those who already believed that there was strong community support.

[^13]
## Likely impacts of changing men's attitudes to women working

With the current data we are unable to examine the impacts of such an intervention on women's labor force participation. ${ }^{23}$ Our data however show that there is likely to be considerable scope for increasing women's labor force participation by influencing men's attitudes - $20 \%$ of women who were not working at the time of the survey report that this was because their husband does not wish them to, and the percentage of women who report that they were not working because they do not wish to is very low at $1 \%$ of female respondents.

Further, perceptions of others' attitudes play a substantial role in their husband's attitudes. 54\% of women who viewed their husbands as not being supportive report that if they were to work, their husband would be worried what other people will think - that he is not able to financially provide for their family $(34 \%)$ or that his wife does not respect him ( $20 \%$ ). These concerns are likely to be alleviated if he knows that there is wide-spread support in the community for women working. In contrast, only $20 \%$ of women were concerned that their husband would view them as neglecting their family. Others' attitudes are also an oft-cited reason for husbands not being supportive of husbands and wives sharing childcare.

Given the percentage increase in men's support for working women attributed to the intervention (25\%) and assuming the same elasticity of female labour supply to men's support as found in Bursztyn et al. (2020), we estimate that our intervention could increase Indonesian female labour supply by as much as 6 percentage points (12\%). Projecting this onto GDP ${ }^{24}$, is estimated to result in an increase in annual GDP growth of $0.67 \%$.

## 6. CONCLUSIONS

The finding that this light touch, low cost, easily scalable online intervention was able to change behavior so that participants made choices consistent with an aspiration for either themselves (for female respondents) or their wives (for male respondents) to work is promising in terms of the likely effectiveness of public information campaigns that demonstrate community support for working women. These could be in the form of TV commercials, billboards or social media posts. The greater understanding of existing social norms towards working women in Indonesia generated here will also be useful for the formulation of such campaigns (e.g., campaigns that try to dispel the link between wives working and a husband's financial capacity).

[^14]
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Figure 1


Figure 2

If husband support is important,
what you'd be most concerned about working?


Figure 3


Figure 4

Support for Shared Childcare


Figure 5
Perceptions of Social Norms
(red line shows actual level of support)


Table 1: Descriptive Statistics and Test of Balance

|  | Mean |  |  |  |  | t-test of equality of means ( p -values) |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | All | Treatment 1 | Treatment 2 | Treatment 3 | Control | T1 vs C | T2 vs C | T3 vs C |
| Age | 30.5 | 30.3 | 30.7 | 30.6 | 30.5 | 0.42 | 0.46 | 0.72 |
| Tertiary educated | 0.25 | 0.26 | 0.26 | 0.23 | 0.25 | 0.79 | 0.65 | 0.21 |
| Live in Java | 0.80 | 0.79 | 0.80 | 0.79 | 0.80 | 0.58 | 0.82 | 0.65 |
| Muslim | 0.92 | 0.91 | 0.92 | 0.93 | 0.93 | 0.17 | 0.53 | 0.99 |
| Male respondent works | 0.99 | 0.98 | 0.99 | 0.99 | 0.99 | 0.13 | 0.56 | 0.40 |
| Female respondent works | 0.83 | 0.84 | 0.84 | 0.82 | 0.82 | 0.57 | 0.57 | 0.89 |
| Wife works | 0.53 | 0.55 | 0.53 | 0.54 | 0.51 | 0.19 | 0.53 | 0.24 |
| Mother worked | 0.69 | 0.69 | 0.69 | 0.70 | 0.67 | 0.19 | 0.37 | 0.16 |
| Friends' mothers worked | 0.92 | 0.93 | 0.92 | 0.92 | 0.92 | 0.42 | 0.58 | 0.69 |
| Support for married women working: |  |  |  |  |  |  |  |  |
| Female respondent | 0.75 | 0.74 | 0.75 | 0.74 | 0.75 | 0.74 | 0.99 | 0.80 |
| Male respondent | 0.63 | 0.63 | 0.65 | 0.62 | 0.62 | 0.84 | 0.25 | 0.98 |
| Mother supportive | 0.75 | 0.74 | 0.77 | 0.76 | 0.74 | 0.79 | 0.08* | 0.14 |
| Support for shared child-care: |  |  |  |  |  |  |  |  |
| Female respondent | 0.95 | 0.94 | 0.95 | 0.95 | 0.96 | 0.35 | 0.49 | 0.89 |
| Male respondent | 0.90 | 0.91 | 0.89 | 0.89 | 0.92 | 0.68 | 0.16 | 0.13 |
| Wife supportive | 0.92 | 0.93 | 0.91 | 0.91 | 0.94 | 0.64 | 0.12 | 0.12 |
| Husband supportive | 0.95 | 0.95 | 0.94 | 0.96 | 0.94 | 0.70 | 0.89 | 0.23 |
| Social desirability bias index | 3.36 | 3.42 | 3.36 | 3.33 | 3.33 | 0.06* | 0.51 | 0.90 |
| Hypothetical reward choice | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.98 | 0.98 | 0.98 |
| Max N | 4478 | 1120 | 1120 | 1120 | 1118 |  |  |  |

Table 2: Impacts of Information Interventions (Real Reward Sample)

| Dependent Variable: Choice of Career Mentoring Course (1/0) |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | All | All <br> Female | Male | All | Not working Female | Male | All | Working Female | Male |
|  | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
| Treatment 1 | $\begin{gathered} 0.067 * * * \\ {[0.023]} \end{gathered}$ | $\begin{aligned} & 0.056 * \\ & {[0.032]} \end{aligned}$ | $\begin{gathered} 0.080^{* *} \\ {[0.032]} \end{gathered}$ | $\begin{gathered} 0.082 * * \\ {[0.040]} \end{gathered}$ | $\begin{gathered} 0.083 \\ {[0.077]} \end{gathered}$ | $\begin{aligned} & 0.082^{*} \\ & {[0.047]} \end{aligned}$ | $\begin{gathered} 0.058^{* *} \\ {[0.028]} \end{gathered}$ | $\begin{gathered} 0.051 \\ {[0.036]} \end{gathered}$ | $\begin{gathered} 0.074 \\ {[0.045]} \end{gathered}$ |
| Treatment2 | $\begin{gathered} 0.092 * * * \\ {[0.023]} \end{gathered}$ | $\begin{aligned} & 0.081 * * \\ & {[0.032]} \end{aligned}$ | $\begin{gathered} 0.103 * * * \\ {[0.033]} \end{gathered}$ | $\begin{gathered} 0.121 * * * \\ {[0.040]} \end{gathered}$ | $\begin{gathered} 0.048 \\ {[0.077]} \end{gathered}$ | $\begin{gathered} 0.147 * * * \\ {[0.047]} \end{gathered}$ | $\begin{gathered} 0.077 * * * \\ {[0.028]} \end{gathered}$ | $\begin{aligned} & 0.086 * * \\ & {[0.036]} \end{aligned}$ | $\begin{gathered} 0.063 \\ {[0.045]} \end{gathered}$ |
| Treatment3 | $\begin{gathered} 0.098 * * * \\ {[0.023]} \end{gathered}$ | $\begin{gathered} 0.107 * * * \\ {[0.033]} \end{gathered}$ | $\begin{gathered} 0.089 * * * \\ {[0.032]} \end{gathered}$ | $\begin{gathered} 0.107 * * * \\ {[0.040]} \end{gathered}$ | $\begin{gathered} 0.110 \\ {[0.075]} \end{gathered}$ | $\begin{aligned} & 0.106^{* *} \\ & {[0.047]} \end{aligned}$ | $\begin{gathered} 0.093 * * * \\ {[0.028]} \end{gathered}$ | $\begin{gathered} 0.108 * * * \\ {[0.036]} \end{gathered}$ | $\begin{aligned} & 0.074 * \\ & {[0.045]} \end{aligned}$ |
| Female | $\begin{gathered} -0.013 \\ {[0.016]} \end{gathered}$ |  |  | $\begin{gathered} -0.048 \\ {[0.032]} \end{gathered}$ |  |  | $\begin{gathered} -0.015 \\ {[0.020]} \end{gathered}$ |  |  |
| Tertiary educated | $\begin{gathered} 0.029 \\ {[0.019]} \end{gathered}$ | $\begin{gathered} 0.018 \\ {[0.027]} \end{gathered}$ | $\begin{gathered} 0.039 \\ {[0.027]} \end{gathered}$ | $\begin{gathered} -0.026 \\ {[0.040]} \end{gathered}$ | $\begin{gathered} -0.013 \\ {[0.104]} \end{gathered}$ | $\begin{gathered} -0.032 \\ {[0.044]} \end{gathered}$ | $\begin{gathered} 0.035 \\ {[0.022]} \end{gathered}$ | $\begin{gathered} 0.011 \\ {[0.029]} \end{gathered}$ | $\begin{gathered} 0.069 * * \\ {[0.034]} \end{gathered}$ |
| Social Desirability Bias | $\begin{gathered} 0.004 \\ {[0.007]} \end{gathered}$ | $\begin{gathered} -0.001 \\ {[0.010]} \end{gathered}$ | $\begin{gathered} 0.010 \\ {[0.010]} \end{gathered}$ | $\begin{gathered} 0.016 \\ {[0.013]} \end{gathered}$ | $\begin{gathered} -0.003 \\ {[0.024]} \end{gathered}$ | $\begin{gathered} 0.025 \\ {[0.016]} \end{gathered}$ | $\begin{gathered} -0.001 \\ {[0.009]} \end{gathered}$ | $\begin{gathered} -0.002 \\ {[0.011]} \end{gathered}$ | $\begin{gathered} 0.000 \\ {[0.014]} \end{gathered}$ |
| Constant | $\begin{gathered} 0.328^{* * *} \\ {[0.030]} \end{gathered}$ | $\begin{gathered} 0.339 * * * \\ {[0.042]} \end{gathered}$ | $\begin{gathered} 0.303 * * * \\ {[0.041]} \\ \hline \end{gathered}$ | $\begin{gathered} 0.270 * * * \\ {[0.053]} \\ \hline \end{gathered}$ | $\begin{gathered} 0.301 * * * \\ {[0.096]} \end{gathered}$ | $\begin{gathered} 0.236^{* * *} \\ {[0.062]} \end{gathered}$ | $\begin{gathered} 0.364 * * * \\ {[0.037]} \\ \hline \end{gathered}$ | $\begin{gathered} 0.352 * * * \\ {[0.047]} \\ \hline \end{gathered}$ | $\begin{gathered} 0.353 * * * \\ {[0.056]} \\ \hline \end{gathered}$ |
| T1=T2 (t-test p-values): | 0.3 | 0.45 | 0.48 | 0.36 | 0.66 | 0.18 | 0.51 | 0.32 | 0.81 |
| $\mathrm{T} 2=\mathrm{T} 3$ | 0.19 | 0.42 | 0.68 | 0.73 | 0.43 | 0.41 | 0.56 | 0.55 | 0.8 |
| $\mathrm{T} 1=\mathrm{T} 3$ | 0.79 | 0.12 | 0.77 | 0.56 | 0.73 | 0.63 | 0.22 | 0.11 | 0.99 |
| $\mathrm{T} 1=\mathrm{T} 2=\mathrm{T} 3$ | 0.38 | 0.3 | 0.78 | 0.65 | 0.73 | 0.41 | 0.56 | 0.28 | 0.96 |
| ASSUMING EQUAL TREATMENT EFFECTS: |  |  |  |  |  |  |  |  |  |
| Treatment | $\begin{gathered} 0.086^{* * *} \\ {[0.019]} \end{gathered}$ | $\begin{gathered} 0.082 * * * \\ {[0.026]} \end{gathered}$ | $\begin{gathered} 0.091 * * * \\ {[0.026]} \end{gathered}$ | $\begin{gathered} 0.103 * * * \\ {[0.032]} \end{gathered}$ | $\begin{gathered} 0.083 \\ {[0.061]} \end{gathered}$ | $\begin{gathered} 0.112 * * * \\ {[0.037]} \end{gathered}$ | $\begin{gathered} 0.076 * * * \\ {[0.023]} \end{gathered}$ | $\begin{gathered} 0.082 * * * \\ {[0.029]} \end{gathered}$ | $\begin{aligned} & 0.070^{*} \\ & {[0.037]} \end{aligned}$ |
| Female | $\begin{gathered} -0.013 \\ {[0.016]} \end{gathered}$ |  |  | $\begin{gathered} -0.048 \\ {[0.032]} \end{gathered}$ |  |  | $\begin{gathered} -0.015 \\ {[0.020]} \end{gathered}$ |  |  |
| Tertiary | $\begin{gathered} 0.029 \\ {[0.019]} \end{gathered}$ | $\begin{gathered} 0.018 \\ {[0.027]} \end{gathered}$ | $\begin{gathered} 0.039 \\ {[0.027]} \end{gathered}$ | $\begin{gathered} -0.024 \\ {[0.040]} \end{gathered}$ | $\begin{gathered} -0.011 \\ {[0.104]} \end{gathered}$ | $\begin{gathered} -0.030 \\ {[0.044]} \end{gathered}$ | $\begin{gathered} 0.035 \\ {[0.022]} \end{gathered}$ | $\begin{gathered} 0.010 \\ {[0.029]} \end{gathered}$ | $\begin{gathered} 0.068 * * \\ {[0.034]} \end{gathered}$ |
| Social Desirability Bias | $\begin{gathered} 0.004 \\ {[0.007]} \end{gathered}$ | $\begin{gathered} -0.002 \\ {[0.010]} \end{gathered}$ | $\begin{gathered} 0.010 \\ {[0.010]} \end{gathered}$ | $\begin{gathered} 0.016 \\ {[0.013]} \end{gathered}$ | $\begin{gathered} -0.004 \\ {[0.024]} \end{gathered}$ | $\begin{gathered} 0.025 \\ {[0.016]} \end{gathered}$ | $\begin{gathered} -0.001 \\ {[0.009]} \end{gathered}$ | $\begin{gathered} -0.002 \\ {[0.011]} \end{gathered}$ | $\begin{gathered} 0.000 \\ {[0.014]} \end{gathered}$ |
| Constant | $\begin{gathered} 0.329 * * * \\ {[0.030]} \\ \hline \end{gathered}$ | $\begin{gathered} 0.341 * * * \\ {[0.042]} \\ \hline \end{gathered}$ | $\begin{gathered} 0.303 * * * \\ {[0.041]} \\ \hline \end{gathered}$ | $\begin{gathered} 0.271 * * * \\ {[0.052]} \\ \hline \end{gathered}$ | $\begin{gathered} 0.302 * * * \\ {[0.096]} \\ \hline \end{gathered}$ | $\begin{gathered} 0.235^{* *} * \\ {[0.061]} \\ \hline \end{gathered}$ | $\begin{gathered} 0.365 * * * \\ {[0.037]} \\ \hline \end{gathered}$ | $\begin{gathered} 0.355 * * * \\ {[0.047]} \\ \hline \end{gathered}$ | $\begin{gathered} 0.352 * * * \\ {[0.056]} \\ \hline \end{gathered}$ |
| Control Mean: | 0.343 | 0.339 | 0.346 | 0.307 | 0.289 | 0.313 | 0.36 | 0.349 | 0.377 |
| Observations | 3,590 | 1,795 | 1,795 | 1,131 | 307 | 824 | 2,459 | 1,488 | 971 |

Robust standard errors in brackets. ${ }^{* * *} \mathrm{p}<0.01,{ }^{* *} \mathrm{p}<0.05,{ }^{*} \mathrm{p}<0.1$
Table 3: Effect of Hypothetical Choices and Social Desirability Bias

| Dependent Variable: Choice of Career Mentoring Course (1/0) |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | All |  |  |  | Female |  |  |  | Male |  |  |  |
| Treatment | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) |
|  | 0.043** | 0.043** | 0.043** | 0.043** | 0.017 | 0.016 | 0.017 | 0.016 | 0.070*** | 0.069*** | 0.069*** | 0.068*** |
|  | [0.017] | [0.017] | [0.017] | [0.017] | [0.024] | [0.024] | [0.024] | [0.024] | [0.024] | [0.024] | [0.024] | [0.024] |
| Hypothetical | 0.079*** | $0.081^{* * *}$ | -0.101* | -0.102* | 0.097*** | 0.098*** | 0.003 | 0.005 | 0.061** | 0.063** | $-0.212 * * *$ | $-0.216^{* * *}$ |
|  | [0.019] | [0.019] | [0.056] | [0.056] | [0.026] | [0.027] | [0.079] | [0.080] | [0.026] | [0.026] | [0.077] | [0.077] |
| Social Desirability Bias (SDB) |  | 0.015** | 0.004 | 0.004 |  | 0.005 | -0.001 | -0.002 |  | 0.026*** | 0.009 | 0.009 |
|  |  | [0.007] | [0.007] | [0.007] |  | [0.009] | [0.010] | [0.010] |  | [0.009] | [0.010] | [0.010] |
| Hypothetical*SDB |  |  | 0.056*** | $0.056^{* * *}$ |  |  | 0.029 | 0.028 |  |  | 0.084*** | 0.085*** |
|  |  |  | [0.016] | [0.016] |  |  | [0.023] | [0.023] |  |  | [0.022] | [0.022] |
| BL support women working |  |  |  | 0.008 |  |  |  | 0.032 |  |  |  | -0.013 |
|  |  |  |  | [0.020] |  |  |  | [0.028] |  |  |  | [0.028] |
| BL support shared childcare |  |  |  | -0.003 |  |  |  | -0.073 |  |  |  | 0.039 |
|  |  |  |  | [0.037] |  |  |  | [0.058] |  |  |  | [0.049] |
| BL spouse supported shared childcare |  |  |  | -0.004 |  |  |  | 0.015 |  |  |  | -0.019 |
|  |  |  |  | [0.039] |  |  |  | [0.055] |  |  |  | [0.054] |
| Mother supportive of women working |  |  |  | 0.014 |  |  |  | -0.015 |  |  |  | 0.041 |
|  |  |  |  | [0.021] |  |  |  | [0.031] |  |  |  | [0.030] |
| Constant | 0.375*** | 0.324*** | 0.363*** | 0.354*** | 0.389*** | 0.372*** | 0.393*** | $0.438^{* * *}$ | 0.362*** | 0.275*** | 0.331*** | 0.294*** |
|  | [0.015] | [0.026] | [0.028] | [0.041] | [0.021] | [0.038] | [0.041] | [0.065] | [0.021] | [0.037] | [0.040] | [0.054] |
| Control Mean: | 0.391 | 0.391 | 0.391 | 0.391 | 0.408 | 0.408 | 0.408 | 0.408 | 0.374 | 0.374 | 0.374 | 0.374 |
| Observations | 4,478 | 4,478 | 4,478 | 4,478 | 2,239 | 2,239 | 2,239 | 2,239 | 2,239 | 2,239 | 2,239 | 2,239 |

Robust standard errors in brackets. *** $\mathrm{p}<0.01$, ** $\mathrm{p}<0.05$, * $\mathrm{p}<0.1$

Table 4: Results for Male Respondents with Hypothetical Choices
Dependent Variable: Choice of Career Mentoring Course (1/0)
All Wife not working Wife working
(1) (2) (3)

|  | $(1)$ | $(2)$ | $(3)$ |
| :--- | :---: | :---: | :---: |
|  |  |  |  |
| Treatment1 | 0.008 | 0.081 | -0.060 |
|  | $[0.066]$ | $[0.094]$ | $[0.094]$ |
| Treatment2 | -0.000 | 0.074 | -0.068 |
|  | $[0.066]$ | $[0.092]$ | $[0.097]$ |
| Treatment3 | -0.037 | -0.001 | -0.063 |
|  | $[0.068]$ | $[0.090]$ | $[0.102]$ |
| Tertiary | 0.083 | 0.121 | 0.058 |
|  | $[0.064]$ | $[0.095]$ | $[0.087]$ |
| Social Desirability Bias | $0.094^{* * *}$ | $0.110^{* * *}$ | $0.081^{* * *}$ |
|  | $[0.020]$ | $[0.027]$ | $[0.030]$ |
| Constant | $0.162^{* *}$ | 0.054 | $0.261^{* *}$ |
|  | $[0.080]$ | $[0.106]$ | $[0.118]$ |
| Control Mean: | 0.486 | 0.448 | 0.528 |
| Observations | 444 | 226 | 218 |

Robust standard errors in brackets. *** $\mathrm{p}<0.01,{ }^{* *} \mathrm{p}<0.05,{ }^{*} \mathrm{p}<0.1$

Table 5: Impacts of Misperceptions (Real Reward Sample)


Robust standard errors in brackets. *** $\mathrm{p}<0.01$, ${ }^{* *} \mathrm{p}<0.05$, * $\mathrm{p}<0.1$

## APPENDIX

Figure A1. Theory of Change


Figure A2: Information Presented to Each Treatment Arm

| TREATMENT GROUP 1 | In a previous question, we asked you to estimate how many out of 100 Indonesian women (with an education level similar to yourself) support wives with children under 12 working for pay outside the home. <br> Your estimate: $\mathbf{x x} \%$ of women are supportive. <br> We surveyed married women with children with similar education level as you across urban Indonesia to assess their support for wives with children under 12 working for pay outside the home and found that: <br> Survey result: 76\% of women are supportive. |
| :---: | :---: |
| TREATMENT GROUP 2 <br> This group receives the information received by treatment group $1 \&:$ | You were also previously asked to indicate how many out of 100 Indonesian men (with an education level similar to your husband) support husbands sharing day-to-day childcare responsibilities with their wives. <br> Your estimate: $\mathbf{x x \%}$ of husbands are supportive. <br> We surveyed married men with children with a similar education to your husband across urban Indonesia to assess their support for husbands sharing childcare duties. <br> Survey result: $\mathbf{9 0 \%}$ of husbands are supportive |
| TREATMENT GROUP 3 <br> This group receives the information received by treatment group $2 \&:$ | Many parents of young children are concerned about their mothers and mothers-in-law not supporting if they work for pay outside the home. <br> Above you were asked to estimate how many women in your mother's generation would agree with the statement: "when a woman works her children suffer". <br> Your estimate: $\mathbf{x x} \%$ of women of your mother's generation agree <br> A representative survey of Indonesian women found that your mother and mother-in-law's generation are actually quite supportive of women with young children working for pay outside the home. <br> Survey result: Less than $\mathbf{1 0 \%}$ of women in your mother's generation agree. |

Table A1: Career Choice Results. Real Rewards Sample. No Controls.

| Dependent Variable: Choice of Career Mentoring Course (1/0) |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | All <br> (1) |  | Male (3) | $\begin{aligned} & \text { All } \\ & \text { (4) } \\ & \hline \end{aligned}$ | Not Working Female (5) | $\begin{gathered} \text { Male } \\ (6) \\ \hline \end{gathered}$ | All (7) | Working Female (8) | $\begin{gathered} \text { Male } \\ (9) \\ \hline \end{gathered}$ |
| treatment1 | $\begin{gathered} 0.068^{* * *} \\ {[0.023]} \end{gathered}$ | $\begin{aligned} & 0.057 * \\ & {[0.032]} \end{aligned}$ | $\begin{gathered} 0.079 * * \\ {[0.032]} \end{gathered}$ | $\begin{gathered} 0.084^{* *} \\ {[0.040]} \end{gathered}$ | $\begin{gathered} 0.084 \\ {[0.077]} \end{gathered}$ | $\begin{aligned} & 0.085^{*} \\ & {[0.047]} \end{aligned}$ | $\begin{aligned} & 0.060 * * \\ & {[0.028]} \end{aligned}$ | $\begin{gathered} 0.052 \\ {[0.035]} \end{gathered}$ | $\begin{gathered} 0.072 \\ {[0.045]} \end{gathered}$ |
| treatment2 | $\begin{gathered} 0.093 * * * \\ {[0.023]} \end{gathered}$ | $\begin{gathered} 0.082 * * \\ {[0.032]} \end{gathered}$ | $\begin{gathered} 0.104 * * * \\ {[0.033]} \end{gathered}$ | $\begin{gathered} 0.122 * * * \\ {[0.040]} \end{gathered}$ | $\begin{gathered} 0.049 \\ {[0.077]} \end{gathered}$ | $\begin{gathered} 0.148 * * * \\ {[0.047]} \end{gathered}$ | $\begin{gathered} 0.078 * * * \\ {[0.028]} \end{gathered}$ | $\begin{gathered} 0.087 * * \\ {[0.036]} \end{gathered}$ | $\begin{gathered} 0.064 \\ {[0.045]} \end{gathered}$ |
| treatment3 | $\begin{gathered} 0.098 * * * \\ {[0.023]} \end{gathered}$ | $\begin{gathered} 0.108 * * * \\ {[0.032]} \end{gathered}$ | $\begin{gathered} 0.088 * * * \\ {[0.032]} \end{gathered}$ | $\begin{gathered} 0.104 * * * \\ {[0.040]} \end{gathered}$ | $\begin{gathered} 0.111 \\ {[0.075]} \end{gathered}$ | $\begin{aligned} & 0.102 * * \\ & {[0.047]} \end{aligned}$ | $\begin{gathered} 0.095 * * * \\ {[0.028]} \end{gathered}$ | $\begin{gathered} 0.109 * * * \\ {[0.036]} \end{gathered}$ | $\begin{gathered} 0.072 \\ {[0.045]} \end{gathered}$ |
| Constant | $\begin{gathered} 0.343 * * * \\ {[0.016]} \end{gathered}$ | $\begin{gathered} 0.339 * * * \\ {[0.022]} \end{gathered}$ | $\begin{gathered} 0.346 * * * \\ {[0.022]} \end{gathered}$ | $\begin{gathered} 0.307 * * * \\ {[0.027]} \end{gathered}$ | $\begin{gathered} 0.289^{* * *} \\ {[0.052]} \end{gathered}$ | $\begin{gathered} 0.313^{* * *} \\ {[0.032]} \end{gathered}$ | $\begin{gathered} 0.360^{* *} * \\ {[0.020]} \end{gathered}$ | $\begin{gathered} 0.349 * * * \\ {[0.025]} \end{gathered}$ | $\begin{gathered} 0.377 * * * \\ {[0.032]} \end{gathered}$ |
| Control mean: | 0.343 | 0.339 | 0.346 | 0.307 | 0.289 | 0.313 | 0.36 | 0.349 | 0.377 |
| Observations | 3,590 | 1,795 | 1,795 | 1,131 | 307 | 824 | 2,459 | 1,488 | 971 |
| R -squared | 0.006 | 0.007 | 0.007 | 0.009 | 0.008 | 0.012 | 0.005 | 0.007 | 0.004 |

Robust standard errors in brackets. *** $\mathrm{p}<0.01,{ }^{* *} \mathrm{p}<0.05$, ${ }^{*} \mathrm{p}<0.1$

Table A2 - Test of Balance by Real Reward /Hypothetical

|  | Means |  |  | t-test of equality of means |
| :---: | :---: | :---: | :---: | :---: |
|  | All | Real Reward | Hypothetical | (p-value) |
| Age | 30.5 | 30.3 | 31.4 | 0.00 |
| Tertiary educated | 0.25 | 0.25 | 0.25 | 0.99 |
| Live in Java | 0.80 | 0.80 | 0.79 | 0.44 |
| Muslim | 0.92 | 0.93 | 0.91 | 0.06* |
| Male respondent works | 0.99 | 0.98 | 1.00 | 0.06* |
| Female respondent works | 0.83 | 0.83 | 0.83 | 0.91 |
| Wife works | 0.53 | 0.54 | 0.49 | 0.06* |
| Mother worked | 0.69 | 0.69 | 0.68 | 0.69 |
| Friends' mothers worked | 0.92 | 0.92 | 0.93 | 0.18 |
| Support for married women working: |  |  |  |  |
| Female respondent | 0.75 | 0.73 | 0.81 | 0.00*** |
| Male respondent | 0.63 | 0.62 | 0.67 | 0.04** |
| Mother supportive | 0.75 | 0.74 | 0.79 | $0.00^{* * *}$ |
| Support for shared child-care: |  |  |  |  |
| Female respondent | 0.95 | 0.94 | 0.97 | 0.02** |
| Male respondent | 0.90 | 0.90 | 0.92 | 0.12 |
| Wife supportive | 0.92 | 0.92 | 0.94 | 0.08* |
| Husband supportive | 0.95 | 0.95 | 0.94 | 0.54 |
| Social desirability bias index | 3.36 | 3.39 | 3.25 | 0.00*** |
| Max N | 4478 | 3590 | 888 |  |


[^0]:    ${ }^{ }$Melbourne Institute of Applied Economic and Social Research, Faculty of Business and Economics, University of Melbourne. Correspondence: lisa.cameron@unimelb.edu.au.
    ${ }^{H}$ Demographic Institute, Faculty of Economics and Business, University of Indonesia.

[^1]:    * We gratefully acknowledge funding from JPAL-SEA's Indonesia Research Fund and the World Bank. We thank Saskia Rizqina Maulida for excellent research assistance.

[^2]:    ${ }^{1}$ Other interventions targeting adolescents in India or parents of young girls in Pakistan seem to have a stronger effect on changing gender attitudes and the potential to increase women employment (see Dhar, D., Jain, T., \& Jayachandran, S., 2022; and Momoe, M., forthcoming).
    ${ }^{2}$ While not designed to change social norms, Field et al (2021) show that male attitudes towards female work and their beliefs about community acceptance of women working were shifted by an intervention that resulted in women receiving wages into their own bank account rather than their husband's account. This shift was hypothesized to come about due to the consequent increase in women's household bargaining power.

[^3]:    ${ }^{3}$ Changing men's behaviours in relation to participating in home production and childcare goes hand-in-hand with increasing female labor force participation. Since childcare is still a gendered task, changing this norm has the potential to increase women's ability to look for economic activities outside of the home.

[^4]:    ${ }^{4}$ Aloud et al. (2020) examines the impact of information on what percentage of female students expect to be working for pay when they are 25 alongside information on monthly wages and a job assistance program.
    ${ }^{5}$ Bursztyn et al (2020) study the effect of men's attitudes on men and women. Aloud et al. (2020) study the effect of women's attitudes on women. It is likely that in Indonesia, men have misperceptions of their wife's view of women's work. This is similar to what has been reported in India by Bernhardt et al (2018) where spouses' preferences often diverge: in 40 percent of households, husbands and wives hold different opinions about whether it is appropriate for women to accept a paid job outside the home.

[^5]:    ${ }^{6}$ Using calculations conducted by the Australia Indonesia Partnership for Economic Governance, as cited at http://www.bbc.com/indonesia/indonesia-42428508.

[^6]:    ${ }^{7} 31 \%$ of Indonesian women aged over 25 years in 2018 had completed upper secondary school, compared to only $3.4 \%$ in 1980. World Bank Databank. Accessible at https://databank.worldbank.org. The service sector accounted for about $29 \%$ of employment in 1991 and $49 \%$ in 2019. See https://data.worldbank.org/indicator/SL.SRV.EMPL.ZS?locations=ID\&view=chart.
    ${ }^{8}$ A Gallup survey found that $56 \%$ of Indonesian men have a preference for women to have paid jobs or do both paid work and care for the home, compared to $65 \%$ in India (Gallup-ILO, 2017)
    ${ }^{9}$ Young adults in Setyonaluri et al. (2021) cited mothers and sisters as their reference group of participants 'perceived social norms.
    ${ }^{10}$ The impact of marriage and childbirth appears to be even larger in urban areas where women are more educated, there are more job opportunities and women's productivity is potentially higher, Cameron et al. 2019. Both surveys were conducted using Qualtrics' online platform and with members of Qualtrics panel respondents who met our eligibility criteria, i.e., they lived in a metropolitan area, were married, aged 18-40 years, living with their partner, had children under the age of twelve, and had at least junior secondary education. Metropolitan areas are those areas defined as such by the Centre for Urban Development and include Lampung, Bandung, Batam, Bekasi. Bogor. Depok, Makassar, Medan, Palembang, Pekanbaru, Semarang, Tangerang, and Jakarta. See http://perkotaan.bpiw.pu.go.id/v2/metropolitan.

[^7]:    ${ }^{11}$ Women with upper secondary education have the lowest female labour force participation in Indonesia, Cameron et al. (2019).
    ${ }^{12}$ Ethics approval for the surveys and interventions was obtained from the University of Melbourne (2022-23161-28577-5) and University of Indonesia (LPEM FEB - 14/UN2.F6.D2.LPM/PPM.KEP/2022). The trial was registered with the AEA RCT Registry (AEARCTR-0009493).

[^8]:    ${ }^{13}$ In the first survey we did not collect information on the perceived support of mothers or mothers-in-law for married women with children working outside the home. We instead use information on the proportion of older women who disagree or strongly disagree with the statement "When a mother works for pay, the children suffer". This was taken from the World Value Survey data. For more on this survey see Haerpfer et al. (2022)

[^9]:    ${ }^{14}$ See https://skillacademy.com/p/career-mentoring-regular-bimbingan-untuk-dapat-
    kerja?courseType=SingleCourse. The shopping vouchers were redeemable at Indomaret and Alfamart stores which are ubiquitous throughout urban Indonesia.
    ${ }^{15}$ We also conducted a list experiment which generates an alternative outcome measure. At the end of the survey (just prior to the choice of reward), respondents were asked how many of the following statements they agreed with (in randomized order): a) The minimum wage should be kept at its current level; b) It is currently difficult to find a good job in Indonesia; c) Unemployment is a big problem in Indonesia; and d) Women with young children should be supported to work outside the home. The list experiment enables the researcher to identify whether respondents in the treatment groups are more likely to agree with the statement about women with young children being supported to work outside the home (as it is the only statement that should be affected by the information interventions) from a comparison of answers across the control and treatment groups, without being able to identify whether individual respondents agreed with that particular statement. It thus has the advantage of not being affected by social desirability bias. It however produces imprecise estimates of intervention impacts. The treatments were found not to have any impact on the reports in the list experiment. Results available on request.

[^10]:    ${ }^{16}$ This is higher than the national female labor force participation rate as we are only sampling from those with a secondary school or higher education in urban areas, and possibly as a result of the profile of the online survey panel (i.e those with access to the internet).
    ${ }^{17}$ Defined as people who reported they were very supportive, supportive or somewhat supportive.

[^11]:    ${ }^{18}$ Our data show that men overestimate their share of childcare. On average they report they undertake $34 \%$ of childcare duties with their wives doing $54 \%$, while women report their husbands only undertake $23 \%$ of childcare duties, compared with their $63 \%$.
    ${ }^{19}$ Two of Qualtrics' panel partners would not let us provide vouchers to respondents. These panel partners contributed $20 \%$ of respondents. For these respondents we asked them which they would choose if given a choice i.e. a hypothetical choice.

[^12]:    ${ }^{20}$ We report results for the real rewards sample only and go on to explore the effect of using a hypothetical choice as the outcome variable further below. Table A1 in the appendix reports results without controls. The inclusion of controls has very little effect on the results.

[^13]:    ${ }^{21}$ It may be that these men found the extent of support reported from mothers $(90 \%)$ was too high to be believable.
    ${ }^{22}$ Similar results were found when using indicator variables of whether someone overestimated versus underestimated the extent of support.

[^14]:    ${ }^{23}$ Due to anticipated high attrition rates among online survey respondents and budgetary constraints we were unable to collect follow-up data on women's labor market activity.
    ${ }^{24}$ Using previous work conducted by the Australia Indonesia Partnership for Economic Governance, see
    http://www.bbc.com/indonesia/indonesia-42428508.

