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Evidence From Australia**

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ABSTRACT

Gender Norms and Domestic Abuse: Evidence From Australia*

Australia conforms to the gender norm that women should earn less than their male partners. We investigate the impact of violating this cultural norm on the incidence of domestic violence and emotional abuse against women and men in Australia. Violating the male breadwinning norm results in a 35 per cent increase in the likelihood of partner violence and a 20 per cent increase in emotional abuse against women. We find no effect on abuse against men. The strong effect of violating the gender norm on abuse against women is present across age ranges, income groups and cultural and educational backgrounds.

JEL Classification: J12, K42, D31

Keywords: domestic violence, gender identity norm, relative income

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1 Introduction

We examine the relationship between violation of the gender norm of male breadwinning and incidence of domestic violence and emotional abuse. Using high-quality survey data, we show that when women earn more than their male partners, they are 35 per cent more likely to report domestic violence. They are 20 per cent more likely to report emotional abuse. We find that violation of the gender norm does not influence reports of partner abuse, either physical or emotional, by men.

These results are consistent across a variety of specifications. In particular, they are robust to potential endogeneity of reported income. When we use a constructed potential income variable to deal with endogeneity in reported income, the results for domestic violence are unchanged. The results for emotional abuse are slightly attenuated, but still large and statistically significant.

We provide evidence that partner violence is driven by violation of gender norms as opposed to an explanation where women's power increases as they earn more relative to their partner, protecting them from partner violence. There is little evidence in our data of a bargaining mechanism. If bargaining is present, it is outweighed by the role of gender norms.

We provide some evidence that violation of the gender norm contributes to additional violence against women on the extensive margin as opposed to the intensive margin. Perhaps not surprisingly to those who have worked in a woman's shelter, we find that the experience of violence against women cuts across demographic groups and that the impact of violating the gender norm on violence and abuse is consistent across age, income, birth country and education.

Our paper contributes to the growing literature on the effect of gender norms on outcomes. It expands on previous research on domestic violence by considering both physical and emotional violence. We examine violence across the entire population, not just among disadvantaged groups. We explore violence against both women and men using independent samples.

In what follows we first discuss the background to our question and the related literature. We then present our data and empirical strategy. After presenting our main results, we undertake several robustness checks and explore the heterogeneity of our estimates. We conclude in the final section.

2 Background

Domestic violence is a serious issue and a worldwide concern. The World Health Organization (WHO)'s 2017 global estimates report that of all women who have been in a relationship, 30 per cent have experienced physical and/or sexual violence by the immediate partner. More than 1 in 3 murder cases of women are committed by her partner.¹ Australian survey data reveal that 1 in 6 women has experienced physical and/or sexual violence, and 1 in 4 has experienced emotional abuse by a partner. Although at lower rates, it affects men too with 1 in 16 and 1 in 6 men experiencing partner violence and emotional abuse (AIHW, 2018).² Under-reporting is common, thus these staggering statistics are believed to be underestimates (Ellsberg et al., 2001). Aizer and Dal Bo (2009) document that only 20 to 50 per cent of assault cases in the U.S. were reported to the police. In addition to the direct physical and mental pain suffered by victims, domestic violence has pernicious effects on children and extended families and causes significant losses to the national economy (Nancarrow et al., 2009). In Australia in 2015-16, it is estimated that the costs of medical care, law enforcement services and loss of human capital due to violence against women and children reached almost A\$22 billion (KPMG Management Consulting, 2016).

The two main theories in family economics surrounding the mechanism of domestic violence are bargaining power and gender identity norms.³ The former is derived from the economic theory which predicts that the increase in economic status of a family member improves his/her bargaining position in the household. Better labor market outcomes or improved divorce laws, for example, improve the 'outside option'—the fallback position in the case where the individuals in the household are unable to come to a cooperative agreement. A vast body of economic research began with the seminal work of Nash (1950). Bargaining theory predicts that the increase in the relative income of a family member will reduce the incidence of domestic violence against her(him).

¹<https://www.who.int/news-room/fact-sheets/detail/violence-against-women>

²See also <https://www.aihw.gov.au/reports-data/behaviours-risk-factors/domestic-violence/overview>.

³The latter is also referred to as the "male backlash model" in the sociology literature. We view Tauchen et al. (1991), with its non-cooperative model of gratification and control, as falling broadly into the second group. Below, we also explore exposure reduction theory from criminology. See Hyde-Nolan and Julia (2012) for an overview of theories of domestic violence.

Yet, an alternative explanation—gender identity norm theory—posits a contrary prediction. The improvement of women’s economic situation may lead to increased domestic violence against women because the male partner may try to regain power within the household, through abusive behavior, in response to the ‘threat’ of women’s increased power.

Both mechanisms have gained some support in previous empirical work. Using survey data from Canada, Bowlus and Seitz (2006) found an improved outside option in the labor market to be a significant deterrent to domestic abuse against women. Aizer (2010) explored this relationship by constructing a proxy for violence against women using female hospitalization for assault in California. She concluded that there was a negative effect of women’s relative (to their male partners) income on the incidence of domestic violence. A randomized control trial in Ecuador compared the impacts from cash transfers and in-kind support targeted to women, and found a decrease in domestic violence in response to both cash and in-kind transfers (Hidrobo et al., 2016). These studies all lend support to the household bargaining theory.

In contrast, another stream of literature finds support for the social norm theory. The relationship of social norms on gender roles and spousal violence was first studied in the sociology literature. Macmillan and Gartner (1999) documented that women’s employment status may expose them to a higher risk of partner violence when men are unemployed. The proffered explanation was that the male partner attempts to reinstate his dominance at home when the gender rule is violated. Akerlof and Kranton (2000) brought this gender identity norm into economics and investigated its impact on women’s non-labor market time use.

Bertrand et al. (2015) showed that women who are successful in their careers pay for their success by investing more time than they otherwise would in household chores, perhaps to make up for violating the gender norm. They also find that when women appear more likely to earn more than their (unmarried) male partner, marriage rates decline. Couples that violate the gender norm have unhappier marriages and are more likely to divorce.

Using Australian survey data, Foster and Stratton (2021) document that female breadwinning leads to lower marriage quality among young couples in cohabiting partnerships. This evidence

suggests an important role for gender identity norms in household decision-making around partnering and income earning.

Using the approach of Aizer (2010) and hospitalization data in Sweden, a recent paper (Ericsson (2019) found a positive impact of women's relative income on domestic abuse against them. This is the opposite of the results of Aizer (2010). Evidence from the evaluation of public transfer programs have also suggested a similar association between an improved financial situation of women and a higher risk of abuse. Angelucci (2008) documented that husbands' abusive behavior varied with the size of transfers in a Mexican cash transfer program. While small transfers reduced abuse, large transfers to women led to increased violence from husbands who hold a traditional view of gender roles. Bobonis et al. (2013) further showed that, though physical abuse reduced for some households in response to the cash transfer intervention, violence threats to female beneficiaries increased significantly.

Collectively, this research presents a mixed view of the relationship between improved economic conditions for women and physical/emotional violence against them. It suggests that the relationship might differ in different countries depending upon the underlying framework of gender relations. It also suggests the possibility that the two mechanisms—bargaining and gender norm theory—co-exist. Both may be present, but one might be stronger in some settings than in others.

One common feature of the previous literature in identifying the relationship is to use the level change of income or the share of a woman's income in the household to explain partner abuse. Researchers then conclude, ex-post, that either bargaining or backlash is present based upon their empirical results. They did not necessarily examine the non-linearities which arise in the relationship when both mechanisms are present. Estimated coefficients obtained with the standard approach provide the average effect of income variation and could pick up both mechanisms at the same time, even though one mechanism may be dominant under particular conditions. This paper first examines potential non-linearities in the raw data and then makes an attempt to single out the social norm effect on domestic abuse by using the threshold where women earn more than 50 per cent of household income as the key treatment variable. Even if a woman's bargaining power

increases as she starts to make more than her husband, the strong reversal of the male breadwinning norm at this threshold may lead to the effect of gender norms becoming stronger.

This approach was first introduced and applied in the work of Bertrand et al. (2015). With U.S. data, the authors observed a sharp drop in the distribution of female household income shares just above one-half. This discontinuity is apparent in cross-sectional data and over time.

The discontinuity in the distribution of the relative income share is induced by an aversion to deviate from the gender identity norm. This aversion to violating the norm of male breadwinning is backed up by survey data showing a surprising number of women who think that men earning more than women causes trouble. In Australia, 32 per cent of women agree with the statement: “If a woman earns more than her husband, it’s almost certain to cause a problem”.⁴

Australian data show a similar discontinuity in the distribution of the female’s income share at one half—see our data below and Foster and Stratton (2021). As this discontinuity is a function of the social norm, a dichotomous measure equal to one when the woman’s relative income share is greater than one-half will be a proxy for compliance with the male breadwinning gender norm. By examining the effect of a woman earning more than her male partner on the incidence of partner abuse, we identify whether violating the gender identity norm for women contributes to domestic violence and emotional abuse against them. We document below that the gender norm explanation seems to be stronger in the Australian data than the bargaining explanation. While both may be present in our data in ways that we can not disentangle, we can not see evidence of a bargaining story and we can see clear dominance of the gender norm story.

Most of the empirical studies on domestic violence have their sample targeting female respondents (Aizer, 2010; Bobonis et al., 2013; Caridad Bueno and Henderson, 2017). Although women have always been the majority of the victims of domestic abuse, men also suffer from physical and emotional violence. Our unique data allow us to look at the experience of domestic violence for men and women. An important contribution of our study, therefore, is to provide estimates for both genders on the relationship between gender norm violations and domestic violence.

⁴The World Values Survey (WVS) asks this question. In the 2010-2014 WVS, 51 per cent of women worldwide agree with the statement.

In addition to competing evidence about the relationship, the literature suggests significant cross-country heterogeneity in the determinants of domestic abuse (Cools and Kotsadam, 2017; Guarnieri and Rainer, 2018). Our study using Australian data adds to the global knowledge evidence base. Next, we introduce the data and variables used for the analysis.

3 Data

Our analysis mainly draws on data from the Personal Safety Survey (PSS). PSS is a de-identified, individual-level survey administered by the Australian Bureau of Statistics (ABS) covering a broad sample of Australians.⁵ Three independent cross-sections have been collected in 2005, 2012 and 2016. The data include information about the respondent and his/her partner.

“Partner” refers to the person with whom the respondent lives in either a married or a de facto relationship. PSS collects information on partner violence and emotional abuse experiences with the current partner and with the previous partner, but only gathers socio-economic information about the current partner. The major outcome variables for this study are binary indicators of whether the respondent has suffered violence or emotional abuse from the current partner.

Partner violence in PSS is defined as “any incident involving the occurrence, attempt or threat of either physical or sexual assault”. Emotional abuse refers to repeated behaviors or actions that are aimed at gaining control through manipulation or intimidation or causing emotional harm or fear to the respondent. The survey asks about the experience of violence and emotional abuse by the current partner since the age of 15. We drop all non-partnered individuals from our analysis.

The frame of the survey was all private dwellings in Australia, excluding very remote areas. The sample was designed to provide representative samples of women at both the state and national levels and a representative sample of men at the national level. This results in the female sample being three times larger than the male sample. Dwellings were chosen and assigned to either the ‘female’ or ‘male’ sample. The male and female samples are thus independent of one another

⁵See Australian Bureau of Statistics (2017) and <https://www.abs.gov.au/ausstats/abs@.nsf/mf/4906.0>.

by construction. Within each household, a random member of that gender aged 18 or older was selected to be interviewed.

Interviews were conducted face-to-face by female interviewers who received special sensitivity training.⁶ When the portion of the survey relating to violence and abuse was reached, participants were offered the opportunity to continue the interview on a laptop using a computer-assisted interview technique in which the interviewer could not see any of the information that was being entered by the respondent. Interviews were conducted in private with no other person present. More details can be found in Australian Bureau of Statistics (2017).

The 2005 and 2016 cross-sections of the PSS contain continuous measures of income. In 2012, income is only provided in categories. We use this reported income in our analysis. We also construct a prospective income measure using publicly available data provided by the ABS. We obtain weekly income from the Survey of Income and Housing (SIH) and employment data from the census.⁷ Using the census data, we construct the proportion of individuals in each industry within gender/education/age/region cells in 2016. For region, we use Level 4 Statistical Area⁸. Using the SIH, we construct average weekly income by year, state, industry and gender.⁹ We combine these to provide an average income for each gender/education/age/region cell weighted by the proportion of employment in each industry. The construction of this prospective income variable is discussed in more detail in section 4 below.

We use this prospective income measure as an alternative income measure to address the potential endogeneity of reported income in the PSS as discussed below. We compare estimates using both income measures. Hereafter, *reported income* refers to the income data collected from PSS and *prospective income* refers to the derived measure using aggregate income from the SIH and census employment, both from the ABS.

⁶Male subjects were assigned female interviewers by default but could request a male interviewer, of which there were a small number who were trained to conduct this survey.

⁷For SIH, see Australian Bureau of Statistics (2019) and <https://www.abs.gov.au/ausstats/abs@.nsf/mf/6553.0>. Census data is from Table Builder, see <https://www.abs.gov.au/websitedbs/censushome.nsf/home/tablebuilder>.

⁸SA4 is roughly analogous to a labor force region and has a high degree of social and economic integration. There are 107 SA4s in Australia. See Australian Bureau of Statistics (2016) for details of Australia's Geographical classification system.

⁹We use three cross-sections of data from the SIH: 2005-2006, 2011-2012 and 2015-2016.

As our aim is to single out the effect of deviations from the norm of male breadwinning and largely following Bertrand et al. (2015), we construct the ratio of the respondent's income over the total income of the couple as follows,

$$RelativeIncome_i^* = \frac{IndividualIncome_i}{IndividualIncome_i + PartnerIncome_i}$$

We construct this relative income measure for both reported and prospective income.

In the subsequent analysis, we specify an indicator variable, $RelativeIncome_i$, equal to 1 if $RelativeIncome_i^* > \frac{1}{2}$, and zero otherwise. For the case of women, $RelativeIncome_i$ equal to one represents violation of the norm of male breadwinning. For men, $RelativeIncome_i$ equal to zero represents violation of the gender norm.

Tables I and II summarize the data for PSS survey participants and their partners.¹⁰ Panel A of Table I indicates that violence experienced at the hands of a past partner is more than three times more common amongst women than men. Fifty percent more women than men report having suffered childhood abuse. While male respondents are more likely to have postgraduate degrees, they are also more likely to only have completed high school or less. In both samples, female respondents tend to be slightly younger in age than their male partners. The females in the female sample look similar to the female partners in the male sample and similarly for men. In our estimation, we control for all of these factors in the full model specification.

Panels C and D of Table II report mean values of key outcome variables and relative income. Women are about 1.5 and two times more likely than men to be the victims of current partner emotional abuse and violence, respectively. The reported incomes in PSS suggest that, on average, husbands earn the majority of total income within the couple, with only small variation across the two samples. In the male sample, men report earning about 63 per cent of combined couple income whereas in the female sample, women report 40 per cent. The proportions of income earned by men and women within couples are not statistically different across the male and female samples.

¹⁰We drop individuals who report same sex partners. This removes less than 1% of the total observations. Abuse can, of course, exist between same sex partners but the appropriate gender norm is unclear for these couples.

Using prospective income results in only slightly different shares, with male respondents ‘earning’ 59 per cent of combined couple income and female respondents 43 per cent.

In terms of our dichotomous measure of relative income, 65 per cent of men in the male respondent group are the primary breadwinner. 22 per cent of women in the female respondent group are the primary breadwinner. This difference is due to the non-trivial number of households where men and women earn the same amount. This is discussed further below. Using prospective income, results are similar. 63 per cent of men in the male respondent group have ‘more income’ than their partner. In the female respondent group, 23 per cent have ‘more income’ than their partner. Note that these are constructed from average income within gender/education/age/region cells for each respondent and her/his partner and do not represent actual income of the individuals.

Figure I presents the distribution of the log of income for those women who make more than their male partners compared to those who make the same amount or less than their male partners. Women who make more than their male partners earn more than other women, on average. We will control for income in the regression models that we estimate and we will explore whether or not the relationship between relative income and abuse differs by overall income levels. We will show that this difference does not explain our results.

Below, we also examine whether educational differences between men and women are related to domestic violence and emotional abuse. In Panel E of Table II, we can see that the majority of couples have the same educational level but that in those couples where there is a difference, the females tend to have more education than the males. This is consistent in both the male and female samples and reflects that in Australia, women’s educational attainment is higher than that of men and has been for several decades.¹¹

Tables I and II report weighted sample statistics, the numbers are nearly identical for the unweighted statistics. Throughout the paper, we report unweighted regression estimates.¹²

We start by presenting data from a large-scale, nationally representative survey that has been

¹¹<https://blog.grattan.edu.au/2019/07/the-gender-divides-at-university/>

¹²Weighted estimation produces qualitatively similar results to what we present. In general, the unweighted estimates tend to be slightly more precise. Since the point estimates do not differ, this leads us to prefer the unweighted estimates. Weighted estimates are available from the authors upon request.

used in previous research on Australia—see Foster and Stratton (2021). Figure II presents the relative income distribution within the household from the perspective of both genders using 17 years of data from the Household, Income and Labour Dynamics in Australia (HILDA) survey. The figure clearly reveals the discontinuous pattern at equal shares of total couple income that has been found in other papers for Australia and other countries.¹³ There are many more couples where the man makes slightly more than the woman and relatively few couples where the woman makes slightly more than the man. The distribution of relative income from zero to 100 per cent only shows a discontinuity at this 50 per cent spot.

Figure III, using the same data source, looks at the trend in the proportion of men and women who earn more than 50 per cent of combined couple income from 2001 to 2017. While gender differences have narrowed slightly between 2001 and 2017, the distance remains remarkably large and there is no structural change during this period. This is important for our analysis as our main results combine survey data from 2005 and 2016.

Figure IV plots the share of income from the perspective of each gender using the PSS data for the two years where continuous income is available (2005 and 2016). The proportion of couples reporting identical income is higher in the PSS than in HILDA, however the same discontinuity is visible with a sharp rise in the height of the histogram in the graph for men when going from below 50 per cent to above 50 per cent and a sharp drop for women when going from below 50 per cent to above 50 per cent. HILDA has a much more detailed methodology for gathering individual and household income than the PSS and this may explain the difference in reports of equal income.

The PSS data show the same compliance with the male breadwinning gender identity norm in Australia as the HILDA data. By examining the effect of *RelativeIncome* on domestic abuse, we are able to evaluate the role of gender identity norms on the occurrence of domestic abuse.

Before turning to a discussion of our empirical strategy and our main estimation, we examine the relationship between the probability of reporting violence and the continuous measure of relative income. Figure V plots the probability of reported partner violence for men and women

¹³Figures are based on couples where both the husband and wife earn positive annual total disposable income and are between 18 and 65 years of age.

against relative income; Figure VI produces analogous plots for reports of emotional abuse.

Examining panels (a) and (b) in Figure V we can see a large spike in reports of partner violence when women earn more than men. The relationship is essentially flat for values of relative income between zero and 0.5, when women earn less than their male partners. For both reported and prospective income the relationship appears to be non-linear. Reports of violence increase when women cross the threshold of earning more than half of household income but then seem to fall as we move towards households in which women earn all of the income. This group is relatively small, however, and the confidence intervals become quite wide.

This would suggest that gender norm violation is a strong factor in domestic violence in Australia. It also seems to provide some evidence against a bargaining story. Were bargaining an important factor, we would expect to see reports of violence decreasing as relative income increases from 0 to 0.5, even in the presence of a story about violence being related to violation of gender norms. Another possibility is that both mechanisms operate when women earn less than men but they offset each other to produce no effect. But something clearly changes when women start to earn more than men.

Looking at panels (c) and (d) of Figure V, where we examine male relative income against reports of violence by men, such reports seem unrelated to relative income.

For women, we see a similar pattern when it comes to reports of emotional abuse as we did for female reports of physical violence. Panels (a) and (b) in Figure VI show no relationship between relative income and reports of emotional abuse when women earn less than men. There is a discernible increase in reports of emotional abuse in households where women earn more than men. The pattern for the reported and prospective income measures is slightly different, with the former decreasing as we move towards households where women earn all of the income and the latter continuing to increase through the range of data. Again the confidence intervals are wide so it is difficult to make precise statements about the relatively small number of households where women earn the vast majority of income. However the main observation of increased reported emotional abuse when the breadwinning gender norm is violated is clear.

For men, there seems to be some relationship between emotional abuse and relative income. Panels (c) and (d) in Figure VI provide evidence for both the gender norm story and the bargaining story. When men earn more than women, the spline is essentially flat suggesting no relationship between emotional abuse and relative income. But when men earn less than women, violating the gender norm, men report higher levels of emotional abuse. There seems to be a decreasing relationship between reports of emotional abuse and relative income—as men’s incomes get closer to those of their female partners, reports of emotional abuse decrease. These apparent relationships in the figure are not born out in the statistical analysis—these patterns do not, for the most part, generate statistically significant estimates when we control for other factors. Figures V and VI are not sensitive to the choice of knots in the spline.

We now turn to our empirical strategy and main results.

4 Empirical Strategy

We focus on the role of relative income in predicting partner abuse and violence. While not being able to rule out a bargaining effect, our approach will primarily pick up the effect of violating gender norms. As discussed above, Figures V and VI suggest a dominant role for gender norms and little role for bargaining, at least for abuse against women.

Our study has the advantage of using a much wider range of reported types of abuse rather than the extreme violence that would result in hospitalisation. Given the care with which the PSS was undertaken, as described above, we have confidence in the data from this survey.

One challenge in identification is the possibility of selection into marriage and income endogeneity as a consequence of previous abuse. Our identification strategy to use relative income to predict violence will fail if there is a dynamic decision-making process in which victims from a previous abusive relationship strategically change their subsequent labor market behavior and/or marriage market outcomes to avoid potential conflicts with a partner. In this case, the gender difference in the relative income share distribution could be a function of past domestic abuse.

Individuals who have experienced partner abuse from a previous relationship might endogenously change the situation by making sure to choose a partner for their next relationship who makes more income than they do or by avoiding earning more than their partner through choice of job or work hours. In either case, the causal direction would be reversed.

We adopt two strategies to solve the issue. First, we check if there is a statistically significant relationship between gender norm compliance in the current relationship and past partner violence. If the causality runs from partner abuse to norm compliance, then the current income distribution will be associated with past partner violence. If such a link is established in the data, we can not rule out the possibility that the income distribution could just be picking up the effect of previous partner violence on current partner abuse.

Secondly, to overcome the potential endogeneity of income, we construct a prospective income measure, which reflects the external labor market demand for each gender, as an alternative measure of income. Literature examining the impact of the gender wage gap has been using the method developed in Bartik (1991) to establish a measure of potential income to an individual rather than the realized one to proxy the wage variation over genders (Aizer, 2010; Bertrand et al., 2015). This approach takes into account gender, age, and education segregation by industry when constructing labor market conditions for men and women.

In this spirit, we construct an average weekly income in year t by gender g , age a and education e in each Level 4 Statistical Area (SA4) s in the following manner:

$$\overline{income}^{gaest} \equiv \sum_d \gamma_d^{gaes,2016} \times income_d^{-Sgt} \quad (1)$$

where $income_d^{-Sgt}$ is the average weekly income in industry d earned in year t for a given gender group g living in geographic areas excluding the state/territory S where SA4 s is located. $\gamma_d^{gaes,2016}$ is the proportion of individuals working in industry d , given gender g , age band a , education group e and living in SA4 s . There are five education categories (postgraduate degree; graduate diploma or graduate certificate; bachelor degree; advanced diploma or diploma; certificate level

and school qualification (high school or lower)), six age bands (see Table I) and 107 SA4 regions. SA4 regions generally represent about 100,000 - 150,000 people and are large enough to allow for accurate regional labor market estimates. In rural areas, SA4s represent aggregations of multiple small labor markets with socio-economic connections or similar industry characteristics. Large regional city labor markets are generally defined by a single SA4. Within major metropolitan labor markets, SA4s represent sub-labor markets.

$income_d^{-Sgt}$ is a leave-one-out national average weekly income by year, industry and gender for each individual. We calculate the average across Australia but drop the state in which that individual lives. As a result, women in the same industry and state will have the same leave-one-out national average weekly income in a given year but women in the same industry in a different state will have a different leave-one-out national average weekly income. By excluding the individual's own state in the prospective income measure, we remove the effect of local labor market conditions which could be another source of endogeneity.

The proportion of employment, $gamma_d^{gaes,2016}$, is calculated from the ABS Census Table-Builder using 2016 as the base year. For each gender-education-SA4-age cell, the γ sum to one. For example, for women with school qualification level in SA4 "Bendigo" aged 30-39, the industry γ will sum to one. Following Aizer (2010), the base year is fixed to rule out potential income variation driven by sorting across industries over years. This removes another potential source of income endogeneity.

This *prospective income* variable that we calculate in equation (1) captures differential earnings potentials at the national level for men and women defined separately for each gender at the level of individual cells defined by age, education and industry. Keeping the base year proportion of employment fixed means that this income measure is picking up aggregate changes in men and women's income potential that might be shifting the balance of power towards or away from women but removing any effect of selective sorting across industries over time. Some industries might be growing or offering higher wages and others may be shrinking or offering lower-than-average wages. Individuals may leave or join these industries in ways that are correlated with

education, age or gender. This variation is removed by this measure.

The prospective income measure will be uncorrelated with a woman's decisions about whether to work or not based upon local labor market effects or effects specific to the industry in which she works. It will also be uncorrelated with a woman's decision about who to marry or how much to work. We can thus use this measure to check whether our results using reported income are affected by these various potential sources of endogeneity.

Different from previous studies, rather than also using aggregate information for the incidence of violence and macro-level controls, we match prospective income data back to survey observations to exploit other individual level variation for respondent and spouse.

For each gender, we separately estimate the linear probability model:

$$Y_{ist} = \beta_0 + \beta_1 \text{RelativeIncome}_{ist} + \beta_2 \text{SA4}_s + \beta_3 \text{Years}_t + \beta_4 \text{Unemp}_{st} + X_{ist} \cdot \gamma + \varepsilon_{ist} \quad (2)$$

Y_{ist} equals one if individual i in SA4 s reports partner violence (or emotional abuse) from the current partner at time t . We estimate separate models for the two outcomes. *RelativeIncome* is equal to one when the individual earns more than her (his) partner. *SA4* and *Year* are region and time fixed effects, controlling for unobserved variation in outcomes over geographic areas and survey years. *Unemp_{st}* is the unemployment rate in each SA4 at year t . X includes individual, partner and couple characteristics. For the individual i , we include dummy variables for being born in Australia; for highest level of education completed (five categories); for speaking English as the first language at home; for experiencing childhood abuse; for experiencing past partner violence; for being in a registered marriage; and for having dependent children. For the partner, we control for being born in Australia; education; and speaking English as the first language at home. For both the individual and the partner we control for a quadratic in age. We control for household income using decile dummies. Decile is calculated by the ABS and provided in the data. The parameter associated with the individual's income share being greater than one (β_1) in Equation (2) is our primary measure of the impact of gender norm violation on domestic violence (or emotional abuse).

5 Baseline Results

We begin by examining the effect of violation of the gender norm of male breadwinning on partner violence and emotional abuse. For each outcome, we first report estimates from a simple specification controlling only for SA4 and year fixed effects. We then proceed to include a full set of individual/partner characteristics.

In some models, we include reports of the individual's experience of abuse before the age of 15 and experience of past partner violence. The inclusion of childhood abuse controls for unobserved shocks from the past which may contribute to the current situation of abuse. Previous partner violence controls for unobservables in the new partner selection process which could explain the incidence of current partner abuse. For both of these variables, we have no strong prior about the expected sign. Previous experience of abuse may lead individuals to avoid abuse in the future but it may also be that individuals select similar partners over time (or select partners similar to family members), leading to a positive correlation over time between current and past abuse.

We follow our main estimates with an investigation on whether the effect of gender norm violation acts on the intensive or extensive margin of current partner violence. We then undertake a variety of robustness checks and examine effect heterogeneity.

5.1 Relative Income, Partner Violence and Emotional Abuse

Tables III and IV display the estimates for partner violence and emotional abuse, respectively. Columns 1 - 3 display estimates with relative income constructed from the reported data in PSS; columns 4 - 6 report coefficients with relative income constructed using our prospective income measure to capture external income variation following the method of Equation (1) as described above.¹⁴ Overall, we observe a positive relationship between violating the gender norm of male breadwinning and the two types of domestic abuse for women. Estimated coefficients do not vary

¹⁴The prospective income estimates include all three years of data whereas the reported income estimates only include the two years for which we have a continuous measure of income—2005 and 2016. If we estimate the models with prospective income using only those two years, the results are almost identical to what we present. Any differences are not driven by sample composition differences in 2012.

much across the different specifications from the simplest specification using only year and area fixed effects to the full specification including demographic variables and reports of past abuse either in childhood or from a previous partner. All estimates for women are statistically significant at the one per cent level.

In panel A of Table III, we find that women are 1.4 to 1.6 percentage points more likely to suffer from partner violence once earning more than the partner (violating the gender norm of male breadwinning). Using reported data produces slightly higher impacts than using prospective income which attempts to capture changes in women's labor market prospects separate from any decisions made within the household. Compared with the average likelihood of experiencing partner violence, these estimates suggest that violating the gender norm of male breadwinning leads to large increases of 31-35 per cent in the incidence of partner violence.

In columns 1 - 3 of panel A in Table IV, we see an increase in partner emotional abuse from gender norm violations of about 3 percentage points for women. This is stable across specifications. However, when we use the prospective income measure, we only find effects that are about half as large. The point estimates reported in columns 4 - 6 range from 1.3 to 1.6 percentage points. Given the average probability of experiencing emotional abuse of 8 per cent, this second set of estimates amount to a 16 to 20 per cent increase in the likelihood of women becoming victims of emotional abuse when the household violates the gender norm of male breadwinning.

The fact that the coefficient estimates using reported income are similar to those using prospective income for reports of partner violence but quite different for reports of emotional abuse suggests that endogeneity of reported income may be a problem for the models of emotional abuse. This appears not to be a problem for the models of partner violence.

Analogous estimation is conducted for male respondents. However, the interpretation of the coefficient is slightly different. For men, earning more than half of household income represents compliance with the culturally prescribed norm. Thus, a statistically significant negative coefficient can be interpreted as men suffering from more abuse when the norm is violated. Results in panel B of Table III and IV indicate that violating the gender norm does not affect the propensity of men

to suffer from partner violence or emotional abuse. This result holds across all specifications and when using either reported or prospective income.

Panel C present the estimates for an alternative specification in which we pool men and women together and include *RelativeIncome* and the interaction between *Female* and *RelativeIncome*. This is a restricted version of the models in Panels A and B which imposes a similar response to covariates (except for *RelativeIncome*) for men and women. For the most part, the impact on partner violence is robust to this specification although the standard errors increase slightly. In all cases, when we undertake a likelihood ratio test, we reject the pooled model of Panel C in favor of the separate estimates of Panels A and B and the p-values are less than one per cent except in one case where the p-value is less than 0.03. This suggests that the effect of covariates is different for men and women and leads us to prefer separate estimation by gender.

5.2 Partner Violence Frequency

Along with the experience of partner violence, the PSS also collects information on the frequency of violence. Respondents are asked how frequently they have experienced violence from their partner. We categorize violence as ‘frequent’ or ‘infrequent’ based upon these responses.¹⁵ We examine how earning more than half of couple income is associated with the frequency of violence.

Table V presents the estimates from an ordered probit model with three outcomes: no violence, infrequent violence and frequent violence. The marginal effect of violating the gender norm is three to five times larger for infrequent violence than it is for frequent violence.

We take this as evidence that violation of the gender norm of male breadwinning impacts primarily on the extensive margin rather than the intensive margin. It appears that violating the gender norm is more likely to result in the occurrence of infrequent violence rather than resulting

¹⁵In 2005, possible responses were ‘often’, ‘sometimes’, ‘rarely’ and ‘one incidence of violence’. In the two later years, possible responses are ‘all of the time’, ‘most of the time’, ‘some of the time’, ‘a little of the time’ and ‘once only’. We group the responses to this question into two categories: ‘frequently’ if the respondent says ‘often’ or ‘sometimes’ (2005) or ‘all of the time’, ‘most of the time’, ‘some of the time’ (2012 and 2016); and ‘infrequently’ if the respondent says ‘rarely’ or ‘one incidence of violence’ (2005) or ‘a little of the time’ or ‘once only’ (2012 and 2016).

in increased violence for those already experiencing abuse.

We also estimated order probit models with a wider set of categories and we estimated a probit model of frequent violence conditional on any violence. We do not report these results as they produced very large standard errors. There are only about 100 individuals in each survey year who report ‘frequent’ violence which makes finer estimation impossible with these data.

We can, however, rule out the story that violating the gender norm makes frequent violence go down and infrequent violence go up, leading to a lower overall level of violence.

6 Alternative explanations

The results presented above point to a role for violation of the male breadwinning gender norm in partner violence and emotional abuse against women. There do not seem to be any effects in either direction for men. In this section we attempt to further validate these findings by exploring alternative samples and data construction and by exploring possible alternative mechanisms which could explain the results.

6.1 Bunching at fifty percent

One notable feature in Figure IV is the pronounced spikes at 0, 0.5 and 1. These represent points where one of the two partners earns no income or where the two partners report exactly equal income. The first and last of these are not implausible as there are couples where one partner works and one does not. The second seems unlikely but there are two reasons why we might observe this in the data. Many individuals in Australia use small business structures combined with trusts to run family business such as small shops or trade professions. In order to minimize tax, they often distribute equal amounts of income through these structures to all family members. It could also be due to rounding errors in reporting income. This latter explanation would also explain why there is more bunching at 50 per cent in the PSS data than in the HILDA data. The latter has a much more refined and detailed income survey instrument.

In our estimates thus far, households where husbands and wives report equal income have *RelativeIncome* equal to zero for both husbands and wives. As a robustness check, we drop those observations where husband income and wife income are equal. Given that the PSS data appear to show a larger fraction of such couples compared to other nationally representative data, we want to make sure that our results are not driven by this income reporting.

Table VI displays results without couples where the share of income in the couple is 0.5. Columns 1 - 2 and 5 - 6 present estimates with relative income from the reported PSS data, while columns 3 - 4 and 7 - 8 display the estimation results using the prospective income measure. Note that the results for the prospective income measure are unchanged as there are no geographical areas in which male and female prospective incomes are exactly the same. Overall, the results are almost identical to what was presented previously.

Different from the main findings reported in Table III, the effect of complying with the gender norm for men becomes marginally significant. As shown in columns 3 and 4 of panel B, earning more than half of couple income decreases the chance of men suffering from partner violence by about 1.2 percentage points. This represents a 50 per cent decrease compared to the baseline level of reported abuse for men, though the effect is only significant with prospective income and only significant at the 10 per cent level. The effect of emotional abuse is similar and more what we might have expected from Figure VI, but not statistically significant. Overall, we still conclude that there is no compelling evidence that violating the male breadwinning norm affects violence or emotional abuse against men.

6.2 Relative Income Within Household

Up to this point we have defined the relative income of husbands and wives relative to the sum of their two incomes. But other individuals in the household may earn income and we could define *RelativeIncome* using total income in the denominator rather than the sum of husband and wife income. Households may contain dependent children, non-dependent children and other relatives or non-relatives who may all contribute to household income.

In columns 1 - 4 of Table VII we report results redefining *RelativeIncome* using husband or wife income divided by total household income. The results are almost identical to the main results presented in Table III. We only present estimates with reported income because there is no way to create prospective income without making strong assumptions about household composition.

6.3 Previous Partner Violence

We next examine one possibility of reverse causality induced by past partner violence. As noted in the discussion of our identification strategy above, it is possible that a dynamic decision-making process involving choices about the labor and marriage markets based upon the past experience of partner violence could determine an equilibrium which explains the observed data patterns. In that case, it could be previous partner violence which determines the current income distribution within the couple and we would expect to observe an association between previous partner violence and the respondent's current relative income situation. Unfortunately, the previous partner's demographic information is not available in the PSS.

Columns 5 and 6 of Table VII present estimates which explore this possibility. We keep everything the same as in the full specification from our main results as shown in columns 3 and 6 of Table III but we replace the outcome variable with past partner violence.¹⁶ If the current income split in the couple is significantly associated with past partner violence, this would be evidence that there was some type of reverse causation. The good news for our identification strategy is that none of these are significant for men or women using either reported or prospective income.

Note that in the full specification from Table III, our main results, we control for past partner violence. The coefficient on gender norm violation increases slightly in magnitude (although this change is not significant) after adding this control, which also suggests that our measure of income distribution between husband and wife does not up the impact of previous partner violence.

¹⁶We drop 'past partner violence' from the set of control variables for obvious reasons.

6.4 Exposure Reduction

Exposure reduction theory suggests that domestic violence should be negatively associated with employment because couples spend less time together when both are employed (Dugan et al., 1999; Chin, 2012). Our main finding on the impact of violation of the male breadwinning norm suggests a positive relationship between better labor market outcomes for women and violence incidence. This would seem to suggest that exposure reduction is unlikely to be the main driving force in determining partner violence.

In this section we investigate whether violations of gender norms have heterogeneous impacts by time spent at work for women. In Appendix Table A-I we include a dummy variable for whether the woman works more than 40 hours per week and we also interact this dummy with *RelativeIncome*. If exposure reduction were an important factor, we should see a negative association between working over 40 hours a week and we should see that working over 40 hours a week mitigates the effect of violating the male breadwinning gender norm.

What we actually see is a positive, although insignificant effect of working more than 40 hours per week on partner violence. This is probably partially picking up the income effect associated with working long hours. We do see a slight effect of mitigation on the exposure variable, although it is statistically insignificant. The results are similar using reported and prospective income.

For emotional abuse, we can draw the same conclusions when we use reported income. Using prospective income, we see a statistically positive effect on women's working over 40 hours on emotional abuse and a nearly equal offsetting effect on the interaction term. The net result is that a woman working over 40 hours per week making more than her husband is .3 per cent less likely to experience emotional abuse as a woman working less than 40 hours per week but earning more than her husband. However, this difference is only just significant at the 10 per cent level and only for prospective income.

Overall, these results suggest that exposure reduction is not a strong explanation for the patterns we observe.

6.5 The role of education

Could power imbalances induced by educational differences produce abuse? Recall from Panel E of Table II that women tend to be more educated than their male partners when there is a difference in educational outcomes.

If we re-estimate all models using relative education (equal to one if the respondent has higher education than her/his partner) and controlling for income, we find no statistically significant relationships between partner violence or abuse and relative education.

If we estimate the main model using relative income as the predictor of violence but we limit the sample to the subset of people who have identical educational levels, we find almost the exact same results for partner violence and emotional abuse against women. We find a slight attenuation of the effects for emotional abuse using prospective income but the results are not statistically different from what is presented in Table IV. For men, we continue to find no significant effects of relative income on partner violence or abuse using this restricted sample. These results are available from the authors upon request.

6.6 Reporting and effect heterogeneity

Could this simply be a reporting effect? We have tried to rule this out in a variety of ways. In the literature, there are four main reasons for mis-reporting/under-reporting of domestic violence: privacy concerns; fear of reprisal; a desire to protect the offender and some evidence that higher income/higher education individuals might be less likely to report domestic violence because of stigma (see Joseph et al. (2017); Felson et al. (2002); and Aizer and Dal Bo (2009)). Reporting might also be related to age or cultural background. Also, gender norms about a woman's role and working outside the home can vary by cultural background, see Antecol (2000).

Many of these relate to the propensity to report to the police, not necessarily reporting in a survey. We believe that privacy concerns and fear of reprisal have been minimized by the extremely careful approach of the ABS to gathering the data—see section 3 above. Protecting the offender doesn't seem relevant since reporting on the survey is unrelated to reporting to authorities and the

ABS has a strong national reputation for protecting respondent data.

In the regression estimates, we control for age, income, education and being Australian born. The only one of these that significantly effects reporting is income—higher income households report less domestic violence and economic abuse.¹⁷ We do not find any effects of age, education or of being Australian-born in explaining the levels of reports. The effects that we report in our main results are robust to all of these controls, including income, as can be seen by comparing columns (1) and (3) of Tables III and IV.

In addition to controlling for the above characteristics in our regressions, we also explore whether the relationship between *RelativeIncome* and reporting domestic violence or emotional abuse varies by age, education, income or cultural background.

Appendix Table A-II explores effect heterogeneity using both income measures for female respondents. We report estimates from the complete model with controls for the full set of background information. Conditional on earning less than their male partner, women under age 40 are less likely to report emotional abuse (although this is only just significant at the 10 per cent level for reported income) and women from families where the couples income rank in the lower five deciles tend to experience more emotional abuse, and when we use prospective income, more violence. This is consistent with the results from the regression controls in our main model estimates.

However, when examining the interaction between norm violation and demographics, we find that the gender norm effect does not vary by age group, income or education. In the third row of each panel of Table A-II, we interact the *RelativeIncome* variable with the female being aged under 40, being in a household below median income and having high school or less education, respectively. For the most part the relationships are insignificant, leading to the conclusion that the relationship between violating the male breadwinning gender norm and partner abuse does not differ by these characteristics. For emotional abuse, when using prospective income, we find an interaction that is positive and significant at the 10 per cent level, but only for prospective income.

¹⁷Reasons why higher income households may report less abuse include: there may be less abuse; higher income women may be more likely to leave a relationship because the outside option is likely to be better, creating selection in our sample; or, there may be more stigma associated with abuse, and therefore less reporting, amongst higher-income women—see Joseph et al. (2017).

Table A-II compares households above and below median income. For income, we also estimated models where we compared people in the bottom decile to the top nine deciles; people in the bottom two deciles to the top eight deciles; people in the bottom three deciles to those in the top seven and people in the bottom four deciles to people in the top six. The only case where we find any differential effect of relative income is for the lowest income decile where the interaction between being in the bottom decile and violating the gender norm was negative and statistically significant at the 10 per cent level. This suggests that there may be some effect of bargaining in the bottom decile. For none of the other splits did we find any significant difference between income groups in terms of the impact of relative income on the incidence of violence or emotional abuse. We undertook a similar exercise with the education variable, changing the cutoff and category groupings. Again, we find no differential impact of relative income on the incidence of violence or emotional abuse irrespective of how we combine the educational groups.

When we estimate models with more detailed age groupings, violation of the male breadwinning norm has a slightly larger effect in the 30-40 age group compared to the rest of the age groupings. However, these differences are not robust to relatively small changes in the age ranges that we use. They are also not robust to how we control for age overall in the model. For emotional abuse, we find that violation of the male breadwinning norm produces a larger effect in the under 20 age group, but we only find this for prospective income, not reported income. Over the two years, there are only about 105 people in this group so we view these results with some scepticism. These more detailed regressions are available from the authors.

Sample sizes may prevent us from identifying differences in the effect of gender norm violations on domestic violence and emotional abuse. But we can rule out the hypothesis that the estimated effects of gender norm violation are driven by one sub-group of the data. This also provides evidence against a reporting explanation. Any reporting bias would have to be independent of overall income, age and education and operate solely through relative incomes.

We re-estimated the models dropping all of those who are not Australian born. This results in a drop in sample size of over 30 per cent, but the headline coefficient results of Tables III and IV are

identical when the models are estimated only on the Australian-born. The results are not driven by those born outside of Australia.

Our data are based upon a population-wide survey that incorporates a broad sample of people representative of Australia. Many previous studies evaluating domestic violence target people with relatively less advantaged backgrounds (Aizer, 2010; Bobonis et al., 2013; Anderberg et al., 2015; Hidrobo et al., 2016). Overall, our results are complementary to previous research focusing on more disadvantaged groups and reveal that domestic abuse driven by gender norm violations appears to be just as severe for couples from higher education and income groups.

7 Concluding Remarks

Using a dichotomous measure of whether a woman earns more than her male partner, we find that violation of the male breadwinning gender norm has a large and statistically significant impact on the incidence of domestic violence and emotional abuse. Our estimates suggest that women are 1.6 percentage points more likely to suffer from partner violence if they earn more than their male partners. This represents a 35 per cent increase in the incidence of partner violence. Women who earn more than their male partners are 3.0 percentage points more likely to suffer from emotional abuse than those who earn less than their male partners. This represents a 20 per cent increase on the incidence of emotional abuse. When we use a measure of women's earning power based upon local age/education/industry-specific earnings potential to remove potential endogeneity of reported income, we find the effect on partner violence to be slightly stronger. We find a smaller, yet still large and statistically significant, effect on the incidence of emotional abuse.

Our paper is unique. We use a population-wide survey which picks up a much wider range of violence and abuse against women than previous studies focused only on disadvantaged groups and extreme events such as hospitalisation. Our data are also unique in that they survey independent groups of women and men about their experiences of partner abuse. We find no compelling evidence of any impact on physical and emotional abuse of men when the gender norm is violated.

We present graphical evidence which suggests that, in Australia, a gender norm explanation for physical violence and emotional abuse is stronger than a bargaining story. As women's share of household income increases, but remains below one-half, there is no change in the experience of physical and emotional abuse. Only when the gender norm is violated do we see an increase in the incidence of physical violence and emotional abuse. It could be that bargaining co-exists with an effect of gender norms, but that the gender norm explanation dominates when women make more than men.

As in other countries, we document a sharp discontinuity in the distribution of the share of female income at one-half. Many couples choose to have male earnings slightly larger than female earnings whereas relatively few have female earnings just larger than male earnings. This is further evidence for Australia that couples are reticent to violate the gender norm of male breadwinning.

We find that the impacts of violating the gender norm on domestic violence and emotional abuse do not vary by age, income decile, education or birth country. The gender norm story is a strong one that seems to operate consistently across a wide range of demographic characteristics.

Our paper adds to the growing literature on the dynamics of couple relationships and the relationship with the relative income shares of the members of the couple. As other studies have found, relative income shares appear to influence experience of domestic violence and abuse. In contrast to one prominent U.S. study, we find that women's increasing economic position does not appear to reduce the probability of experiencing partner violence. Our study seems more in accordance with evidence from Sweden that women's increasing economic power results in a backlash from men that presents itself as increased violence against women.

Three key points thus require highlighting. The first is that as women's economic power increases, their bargaining power must certainly be increasing. At the same time, violation of gender norms appears to create strong negative effects for women. We document those effects for physical and emotional abuse from partners; others have documented it for relationship quality and time spent on household production. As both effects will be present, to varying degrees, in different countries, country-specific evidence is absolutely essential for policy-makers. Secondly, in as

much as gender norms may play quite a large role relative to bargaining, as we document, policy-makers need to carefully consider which types of programs can effectively lower partner abuse against women. Simply increasing women's economic power may not be effective in reducing violence against women and government may need to try and influence cultural change. Many economists are uncomfortable with the idea of government trying to alter preferences. However, thinking about how to design child care policy, parental leave policy and family payments policy to allow gender norms to evolve alongside greater gender equality in work and income seems like a clear policy direction. Policies to assist women in leaving abusive relationships may also help. Finally, our work also suggests a need for future research to find ways to separately identify and test the two mechanisms.

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Figures and Tables

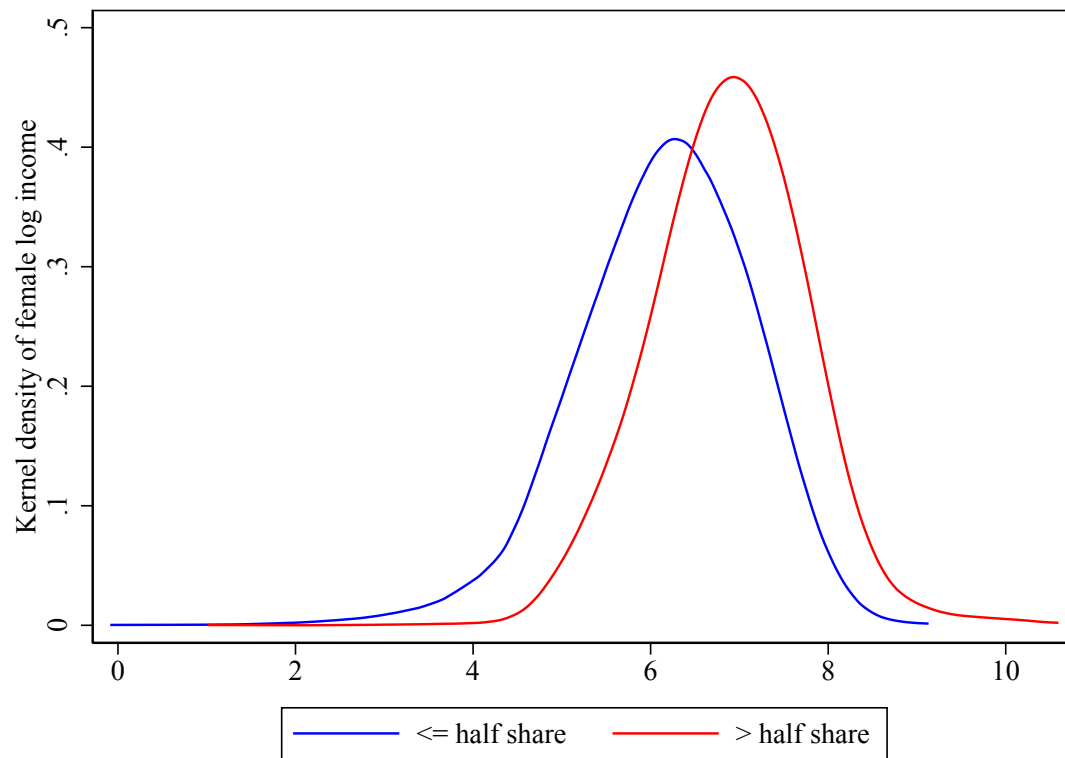


Figure I. DISTRIBUTION OF FEMALE LOG INCOME SPLIT BY WHETHER THE FEMALE EARNS MORE THAN THE MALE

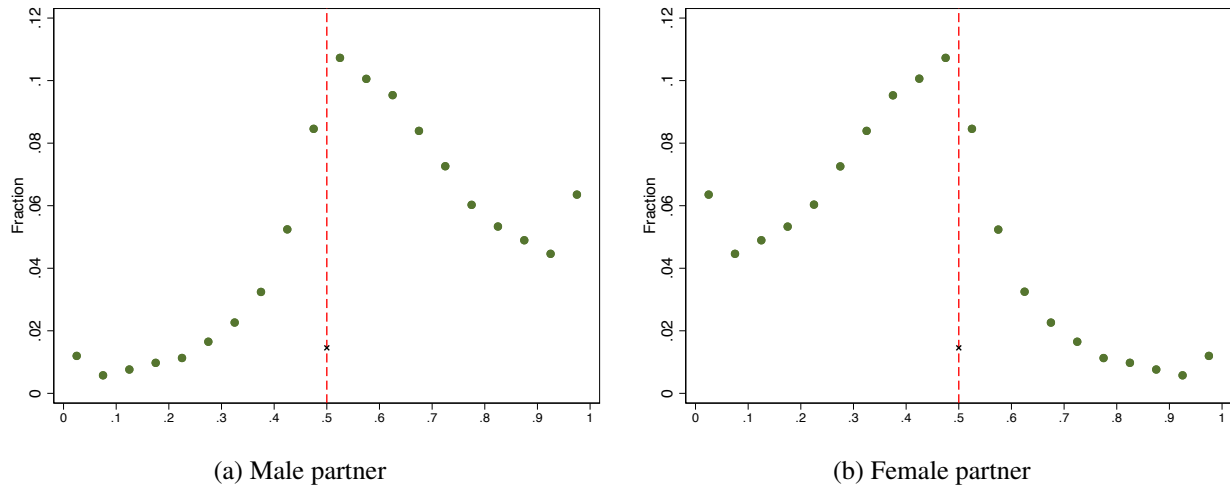


Figure II. RELATIVE INCOME DISTRIBUTION (HILDA 2001 TO 2017) — BY GENDER
 Distribution of relative income in bins of 5 per cent; Couples with identical income dropped from distribution and their frequency is marked with “x”; includes couples where both partners earn positive annual total disposable income and are between 18 and 65 years of age

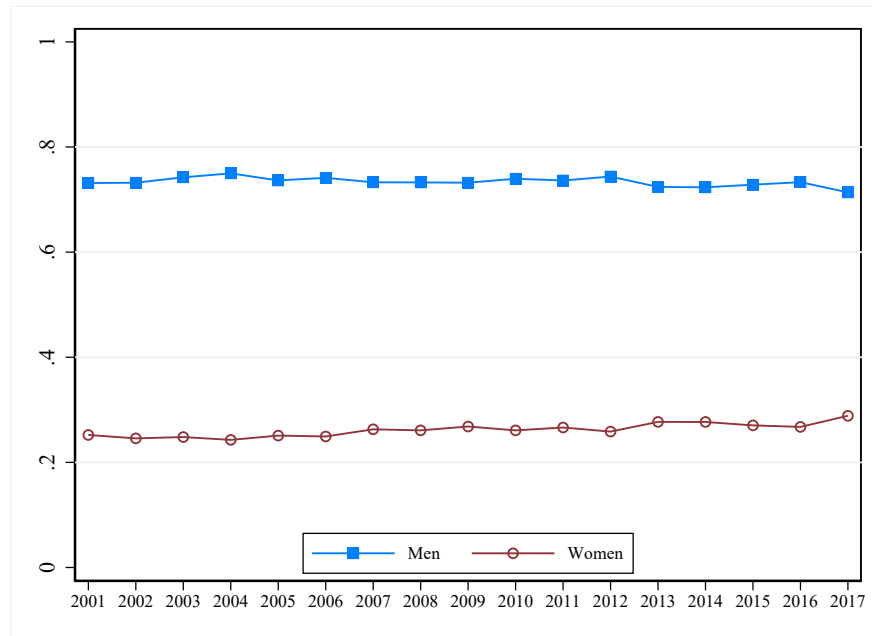


Figure III. PROPORTION OF MEN AND WOMEN EARNING MORE THAN 50 PER CENT OF COMBINED COUPLE INCOME (HILDA 2001 TO 2017): BY GENDER
 Includes couples where both partners earn positive annual total disposable income and are between 18 and 65 years of age

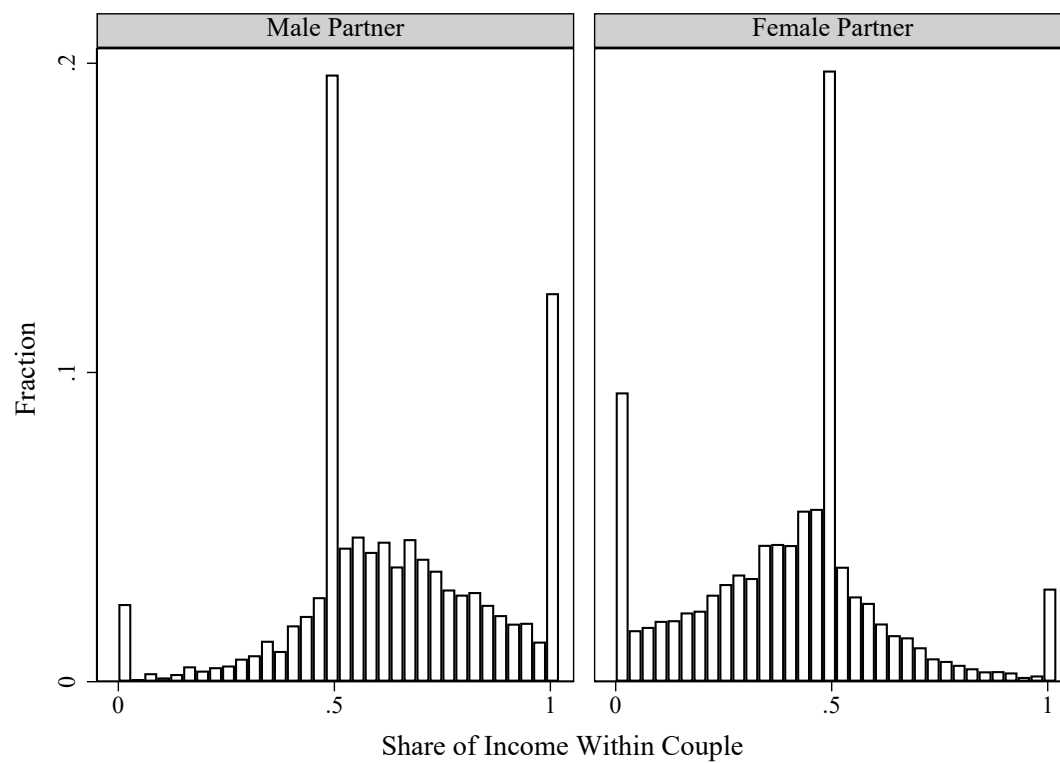
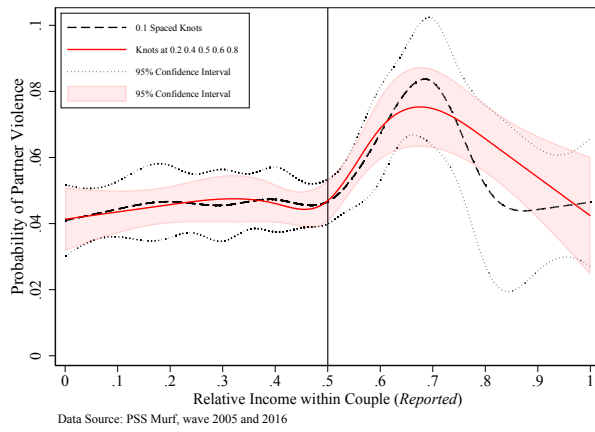
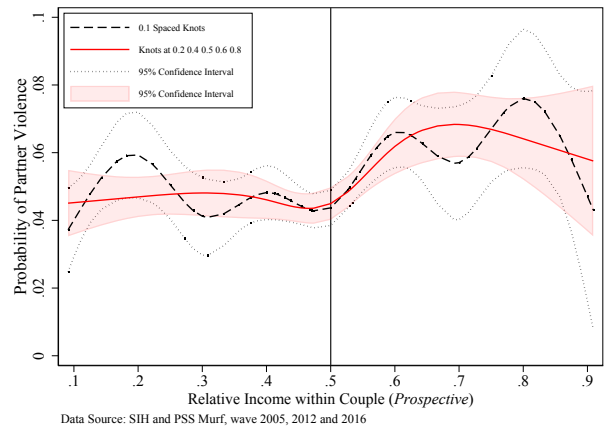


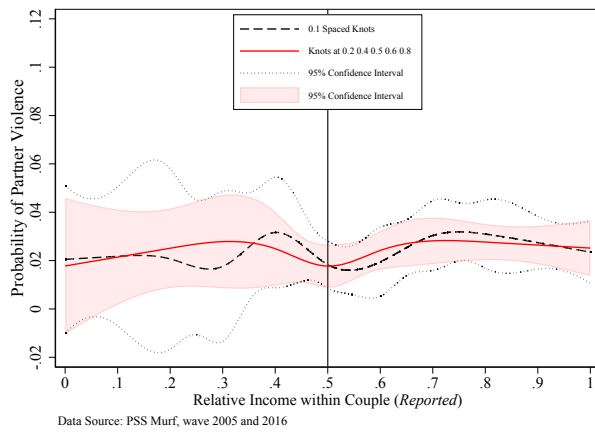
Figure IV. RELATIVE INCOME DISTRIBUTION (PSS 2005 AND 2016) — BY GENDER



(a) Reported, Women



(b) Prospective, Women

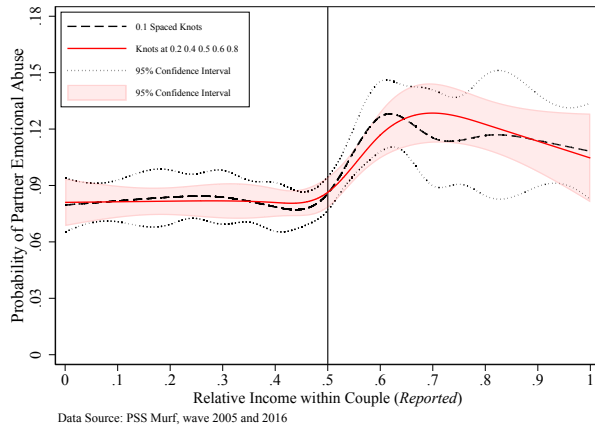


(c) Reported, Men

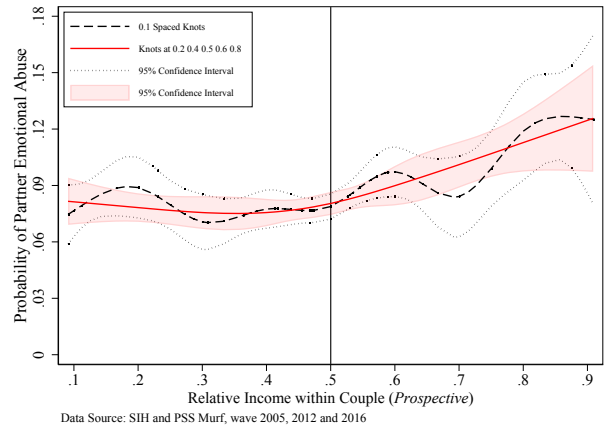


(d) Prospective, Men

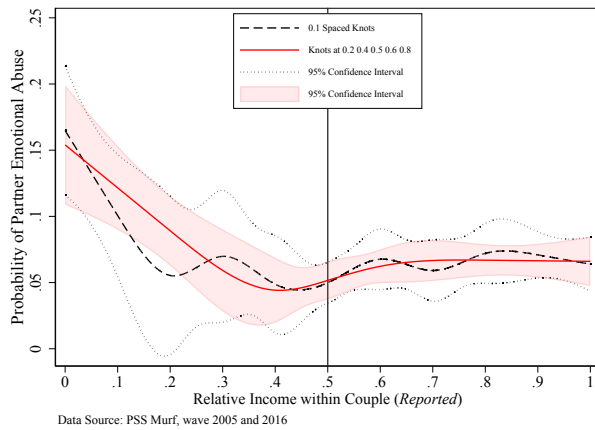
Figure V. PARTNER VIOLENCE AS A RESTRICTED CUBIC SPLINE OF RELATIVE INCOME — BY GENDER



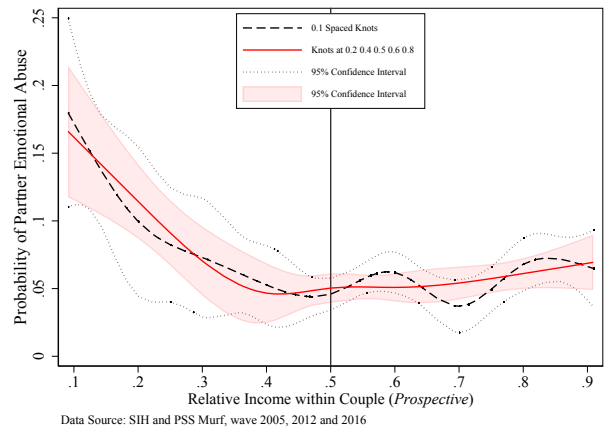
(a) Reported, Women



(b) Prospective, Women



(c) Reported, Men



(d) Prospective, Men

Figure VI. PARTNER EMOTIONAL ABUSE AS A RESTRICTED CUBIC SPLINE OF RELATIVE INCOME — BY GENDER

Table I. DESCRIPTIVE STATISTICS FOR RESPONDENT AND PARTNER CHARACTERISTICS

Variables	Men (respondent)			Women (respondent)		
	Mean (1)	St.Dev. (2)	Obs. (3)	Mean (4)	St.Dev. (5)	Obs. (6)
<i>Panel A. Respondent Background Characteristics</i>						
Born in Australia	0.671	0.470	6,940	0.669	0.470	26,084
First Language as English	0.830	0.376	6,940	0.820	0.384	26,085
Experienced Childhood Abuse	0.113	0.317	6,863	0.167	0.373	25,707
Past Partner Violence	0.028	0.164	6,940	0.092	0.289	26,085
Highest Educational Attainment						
Postgraduate Degree	0.074	0.262	6,809	0.065	0.246	25,608
Graduate Diploma/Graduate Certificate	0.028	0.166	6,809	0.038	0.191	25,608
Bachelor Degree	0.177	0.382	6,809	0.212	0.409	25,608
Diploma/Advanced Diploma	0.112	0.316	6,809	0.125	0.331	25,608
Certificates I-IV, High School or Less Education	0.608	0.488	6,809	0.560	0.496	25,608
Respondent Age Band						
>= 15, <= 19	0.001	0.034	6,940	0.004	0.066	26,085
>= 20, <= 29	0.098	0.297	6,940	0.126	0.331	26,085
>= 30, <= 39	0.208	0.406	6,940	0.225	0.418	26,085
>= 40, <= 49	0.219	0.414	6,940	0.220	0.414	26,085
>= 50, <= 59	0.192	0.394	6,940	0.193	0.395	26,085
>= 60	0.282	0.450	6,940	0.232	0.422	26,085
<i>Panel B. Partner Background Characteristics</i>						
Born in Australia	0.673	0.469	6,935	0.668	0.471	26,080
First Language as English	0.827	0.378	6,940	0.830	0.376	26,085
Highest Educational Attainment						
Postgraduate Degree	0.056	0.229	6,664	0.069	0.254	25,162
Graduate Diploma/Graduate Certificate	0.027	0.162	6,664	0.015	0.123	25,162
Bachelor Degree	0.235	0.424	6,664	0.195	0.396	25,162
Diploma/Advanced Diploma	0.112	0.316	6,664	0.082	0.274	25,162
Certificates I-IV, High School or Less Education	0.570	0.495	6,664	0.639	0.480	25,162
Partner Age Band						
>= 15, <= 19	0.004	0.061	6,940	0.001	0.038	26,085
>= 20, <= 29	0.127	0.333	6,940	0.092	0.289	26,085
>= 30, <= 39	0.226	0.418	6,940	0.208	0.406	26,085
>= 40, <= 49	0.222	0.415	6,940	0.220	0.414	26,085
>= 50, <= 59	0.196	0.397	6,940	0.194	0.396	26,085
>= 60	0.226	0.418	6,940	0.285	0.451	26,085

Data Source: Personal Safety Survey (PSS). Sample is restricted to respondents in married or de facto relationships.

Table II. DESCRIPTIVE STATISTICS FOR OUTCOMES, RELATIVE INCOME AND OTHER COUPLE CHARACTERISTICS

Variables	Men (respondent)			Women (respondent)		
	Mean (1)	St.Dev. (2)	Obs. (3)	Mean (4)	St.Dev. (5)	Obs. (6)
<i>Panel C. Outcome Variables</i>						
Current Partner Violence	0.022	0.148	6,940	0.045	0.207	26,085
Current Partner Emotional Abuse	0.058	0.234	6,940	0.082	0.274	26,084
<i>Panel D. Relative Income Variation</i>						
Income Share within Couple ^a	0.634	0.235	3,621	0.396	0.235	14,278
Relative Income over Half ^a	0.645	0.479	3,621	0.224	0.417	14,278
Prospective Income Share within Couple ^b	0.590	0.166	4,916	0.434	0.172	18,822
Prospective Relative Income over Half ^b	0.627	0.484	4,916	0.233	0.423	18,822
<i>Panel E. Other Couple Characteristics</i>						
Registered Marriage	0.834	0.372	6,940	0.835	0.372	26,085
Having Dependent Children	0.443	0.497	6,940	0.443	0.497	26,085
Couple Weekly Cash Income						
Lowest Decile	0.083	0.277	5,909	0.092	0.290	21,862
Second Decile	0.108	0.310	5,909	0.112	0.316	21,862
Third Decile	0.098	0.297	5,909	0.103	0.304	21,862
Fourth Decile	0.099	0.299	5,909	0.107	0.309	21,862
Fifth Decile	0.092	0.289	5,909	0.103	0.304	21,862
Sixth Decile	0.100	0.300	5,909	0.099	0.298	21,862
Seventh Decile	0.100	0.300	5,909	0.098	0.298	21,862
Eighth Decile	0.101	0.301	5,909	0.100	0.300	21,862
Ninth Decile	0.104	0.306	5,909	0.096	0.294	21,862
Highest Decile	0.115	0.319	5,909	0.090	0.286	21,862
Relative Educational Attainment within Couple						
Same Education Level	0.583	0.493	6,547	0.600	0.490	24,732
Higher Education Level	0.201	0.400	6,547	0.240	0.427	24,732
Lower Education Level	0.216	0.412	6,547	0.160	0.366	24,732
Waves						
2005	0.259	0.438	6,940	0.254	0.435	26,085
2012	0.368	0.482	6,940	0.370	0.483	26,085
2016	0.373	0.484	6,940	0.376	0.484	26,085

Data Source: Survey of Income and Housing (SIH) and ABS Census TableBuilder for prospective income distribution, Personal Safety Survey (PSS) for other variables. Sample is restricted to respondents in married or de facto relationships.

a. Of the three waves of PSS, continuous income measures are only available in waves 2005 and 2016; estimation with reported income in PSS uses two years of data.

b. Continuous income measures in SIH data cover all three waves of PSS; estimation with prospective income uses three years of data.

Table III. IMPACT OF VIOLATING GENDER NORM ON PARTNER VIOLENCE — BASELINE ESTIMATES

	(1)	(2)	(3)	(4)	(5)	(6)
<i>Panel A. Female</i>						
<i>Earning more than half share of income</i>	0.016*** (0.005)	0.015** (0.005)	0.016*** (0.005)	0.015*** (0.003)	0.013*** (0.004)	0.014*** (0.003)
adj.R-squared	0.002	0.006	0.015	0.001	0.005	0.013
Observations	14,278	13,560	13,283	18,822	18,818	18,536
<i>Panel B. Male</i>						
<i>Earning more than half share of income</i>	0.005 (0.004)	-0.000 (0.003)	-0.001 (0.003)	0.004 (0.004)	-0.002 (0.005)	-0.003 (0.005)
adj.R-squared	-0.002	0.003	0.009	-0.002	0.001	0.007
Observations	3,621	3,439	3,382	4,916	4,914	4,855
<i>Panel C. Gender Difference</i>						
<i>Earning more than half share of income</i> × <i>Female</i> :	0.011 (0.007)	0.011 (0.007)	0.013* (0.007)	0.012* (0.006)	0.012** (0.006)	0.013** (0.006)
adj.R-squared	0.004	0.007	0.015	0.003	0.006	0.013
Observations	17,899	16,999	16,665	23,738	23,732	23,391
Year and SA4 Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Demographic Variables	No	Yes	Yes	No	Yes	Yes
Current Partner Controls	No	Yes	Yes	No	Yes	Yes
Childhood Abuse	No	No	Yes	No	No	Yes
Previous Partner Violence	No	No	Yes	No	No	Yes
SA4 Unemployment Rate	No	No	Yes	No	No	Yes
Source of Income	<i>Reported</i>	<i>Reported</i>	<i>Reported</i>	<i>Prospective</i>	<i>Prospective</i>	<i>Prospective</i>

Note: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Each cell is the estimated coefficient from a separate regression.

Reported coefficients in Panel A and B display the estimates of β_1 on *RelativeIncome* in equation (2). Panel C examines a gender difference in the main effect by estimating a DiD specification and reporting the coefficients on the interaction term of *RelativeIncome* and *Female*.

Robust standard errors are clustered at state/territory-year level and reported in parentheses.

Column 1 - 3 present estimates with the relative income constructed from data reported in PSS, column 4 - 6 display the estimation results with the relative income constructed with census TableBuilder and average weekly income from SIH following equation (1). SA4 represents the Statistical Area Level 4 in Australian Statistical Geography Standard. There are 107 SA4 regions covering the whole nation.

Table IV. IMPACT OF VIOLATING GENDER NORM ON EMOTIONAL ABUSE — BASELINE ESTIMATES

	(1)	(2)	(3)	(4)	(5)	(6)
<i>Panel A. Female</i>						
<i>Earning more than half share of income</i>	0.033*** (0.007)	0.028*** (0.007)	0.027*** (0.007)	0.016*** (0.004)	0.012** (0.004)	0.013*** (0.004)
adj.R-squared	0.008	0.013	0.032	0.004	0.009	0.026
Observations	14,277	13,559	13,282	18,821	18,817	18,535
<i>Panel B. Male</i>						
<i>Earning more than half share of income</i>	-0.000 (0.008)	-0.016 (0.011)	-0.010 (0.012)	0.008 (0.008)	-0.002 (0.009)	0.002 (0.010)
adj.R-squared	0.009	0.014	0.023	0.007	0.018	0.024
Observations	3,621	3,439	3,382	4,916	4,914	4,855
<i>Panel C. Gender Difference</i>						
<i>Earning more than half share of income</i> × <i>Female</i> :	0.032*** (0.010)	0.037*** (0.011)	0.031** (0.012)	0.009 (0.010)	0.010 (0.010)	0.007 (0.010)
adj.R-squared	0.008	0.013	0.030	0.006	0.011	0.026
Observations	17,898	16,998	16,664	23,737	23,731	23,390
Year and SA4 Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Demographic Variables	No	Yes	Yes	No	Yes	Yes
Current Partner Controls	No	Yes	Yes	No	Yes	Yes
Childhood Abuse	No	No	Yes	No	No	Yes
Previous Partner Violence	No	No	Yes	No	No	Yes
SA4 Unemployment Rate	No	No	Yes	No	No	Yes
Source of Income	<i>Reported</i>	<i>Reported</i>	<i>Reported</i>	<i>Prospective</i>	<i>Prospective</i>	<i>Prospective</i>

Note: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Each cell is the estimated coefficient from a separate regression.

Reported coefficients in Panel A and B display the estimates of β_1 on *RelativeIncome* in equation (2).

Panel C examines a gender difference in the main effect by estimating a DiD specification and reporting the coefficients on the interaction term of *RelativeIncome* and *Female*.

Robust standard errors are clustered at state/territory-year level and reported in parentheses. Columns 1 - 3 present estimates with relative income constructed from data reported in PSS, columns 4 - 6 display estimation results with relative income constructed with census TableBuilder and average weekly income from SIH following equation (1). SA4 represents the Statistical Area Level 4 in Australian Statistical Geography Standard, including 107 SA4 regions covering the whole nation.

Table V. IMPACT OF VIOLATING GENDER NORM ON PARTNER VIOLENCE — ORDERED PROBIT ESTIMATION, EXTENSIVE VS. INTENSIVE MARGIN, FEMALE SAMPLE

	(1)	(2)	(3)	(4)	(5)	(6)
No violence occurs	-0.012*** (0.004)	-0.010*** (0.004)	-0.011*** (0.004)	-0.013*** (0.003)	-0.010*** (0.003)	-0.011*** (0.003)
Violence occurs occasionally	0.010*** (0.003)	0.008*** (0.003)	0.009*** (0.003)	0.010*** (0.002)	0.008*** (0.002)	0.009*** (0.002)
Violence occurs sometimes to often	0.002*** (0.001)	0.002** (0.001)	0.002*** (0.001)	0.003*** (0.001)	0.002*** (0.001)	0.002*** (0.000)
Observations	14,278	13,560	13,283	18,822	18,818	18,536
Year and SA4 Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Demographic Variables	No	Yes	Yes	No	Yes	Yes
Current Partner Controls	No	Yes	Yes	No	Yes	Yes
Childhood Abuse	No	No	Yes	No	No	Yes
Previous Partner Violence	No	No	Yes	No	No	Yes
SA4 Unemployment Rate	No	No	Yes	No	No	Yes
Source of Income	<i>Reported</i>	<i>Reported</i>	<i>Reported</i>	<i>Prospective</i>	<i>Prospective</i>	<i>Prospective</i>

Note: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Each cell presents the marginal effect evaluated at the mean from a separate ordered probit estimation.

Robust standard errors are clustered at state/territory-year level and reported in parentheses.

Sample restricted to females only.

Columns 1 - 3 present estimation results using reported income from PSS; columns 4 - 6 display estimation results with relative income constructed with census TableBuilder and average weekly income in SIH following the methodology of equation (1). SA4 represents the Statistical Area Level 4 in Australian Statistical Geography Standard, including 107 SA4 regions covering the whole nation.

Table VI. ROBUSTNESS CHECKS — IMPACT OF VIOLATING GENDER NORM ON DOMESTIC ABUSE: DROPPING CASES WHERE PARTNERS EARN EXACTLY EQUAL INCOME

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Partner Violence				Emotional Abuse			
Panel A. Female								
Earning more than half share of income	0.014** (0.006)	0.016** (0.006)	0.012** (0.004)	0.013*** (0.004)	0.030*** (0.007)	0.030*** (0.007)	0.014** (0.005)	0.015*** (0.005)
adj.R-squared	0.006	0.015	0.005	0.013	0.013	0.029	0.009	0.024
Observations	11,369	11,124	14,195	13,978	11,368	11,123	14,194	13,977
Panel B. Male								
Earning more than half share of income	-0.004 (0.006)	-0.004 (0.005)	-0.013* (0.006)	-0.012* (0.006)	-0.021 (0.014)	-0.014 (0.014)	-0.016 (0.012)	-0.008 (0.014)
adj.R-squared	0.005	0.013	0.003	0.011	0.008	0.018	0.013	0.022
Observations	2,863	2,820	3,819	3,777	2,863	2,820	3,819	3,777
Year and SA4 Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Demographic Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Current Partner Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Childhood Abuse	No	Yes	No	Yes	No	Yes	No	Yes
Previous Partner Violence	No	Yes	No	Yes	No	Yes	No	Yes
SA4 Unemployment Rate	No	Yes	No	Yes	No	Yes	No	Yes
Source of Income	Reported	Reported	Prospective	Prospective	Reported	Reported	Prospective	Prospective

Note: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Each cell is the estimated coefficient from a separate regression.

Robust standard errors are clustered at state/territory-year level and reported in parentheses.

Estimation results after dropping observations where husband and wife earn equal share of total couple income.

Columns 1 - 2 and 5 - 6 present estimates with relative income constructed from data reported in PSS; columns 3 - 4 and 7 - 8 display results using relative income constructed with census TableBuilder and average weekly income from SIH following equation (1).

Columns 1 - 4 report estimates for the effect on partner violence; columns 5 - 8 display estimates for the effect on emotional abuse.

SA4 represents the Statistical Area Level 4 in Australian Statistical Geography Standard, including 107 SA4 regions covering the whole nation.

Table VII. ROBUSTNESS CHECKS — IMPACT OF VIOLATING GENDER NORM ON DOMESTIC ABUSE: ALTERNATIVE DEFINITION OF RELATIVE INCOME & PREVIOUS PARTNER VIOLENCE

	(1) Partner Violence	(2)	(3) Emotional Abuse	(4)	(5) Previous Partner Violence	(6)
	<i>Panel A. Female</i>					
<i>Earning more than half share of income</i>	0.015** (0.006)	0.015** (0.006)	0.028*** (0.007)	0.027*** (0.007)	0.011 (0.007)	0.011 (0.007)
adj.R-squared	0.006	0.014	0.013	0.032	0.047	0.064
Observations	13,162	12,891	13,162	12,891	13,560	13,283
	<i>Panel B. Male</i>					
<i>Earning more than half share of income</i>	0.000 (0.002)	-0.001 (0.002)	-0.014 (0.010)	-0.011 (0.010)	0.009 (0.005)	0.009 (0.005)
adj.R-squared	0.003	0.008	0.012	0.020	0.032	0.035
Observations	3,320	3,266	3,320	3,266	3,439	3,382
Year and SA4 Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Demographic Variables	Yes	Yes	Yes	Yes	Yes	Yes
Current Partner Controls	Yes	Yes	Yes	Yes	Yes	Yes
Childhood Abuse	No	Yes	No	Yes	No	Yes
Previous Partner Violence	No	Yes	No	Yes		
SA4 Unemployment Rate	No	Yes	No	Yes	No	Yes
Source of Income	<i>Reported</i>	<i>Reported</i>	<i>Reported</i>	<i>Reported</i>	<i>Reported</i>	<i>Reported</i>

Note: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Each cell is the estimated coefficient from a separate regression.

Robust standard errors are clustered at state/territory-year level and reported in parentheses.

Columns 1 - 4 examine the impact on partner violence and emotional abuse with income distribution constructed within household rather than couple.

Columns 5 - 6 explore the association of current income distribution and previous partner violence; the source of income distribution is reported PSS data.

SA4 represents the Statistical Area Level 4 in Australian Statistical Geography Standard, including 107 SA4 regions covering the whole nation.

Table A-I. EXPLORING THE MECHANISM — EXPOSURE AND DOMESTIC ABUSE

	(1) Partner Violence	(2)	(3) Emotional Abuse	(4)
<i>Panel A. Female</i>				
<i>Working more than or equal to 40 hours per week</i>	0.008 (0.006)	0.007 (0.005)	0.011 (0.008)	0.023*** (0.007)
<i>Earning more than half share</i>	0.019*** (0.006)	0.015*** (0.005)	0.029** (0.013)	0.023** (0.009)
<i>Working more than or equal to 40 hours per week</i> × <i>Earning more than half share of income</i>	-0.007 (0.012)	-0.003 (0.009)	-0.009 (0.015)	-0.026* (0.015)
adj.R-squared	0.012	0.011	0.023	0.023
Observations	8,624	12,479	8,624	12,479
<i>Panel B. Male</i>				
<i>Working more than or equal to 40 hours per week</i>	0.022 (0.018)	0.013 (0.013)	0.007 (0.029)	0.006 (0.018)
<i>Earning more than half share</i>	0.011 (0.015)	0.004 (0.013)	-0.009 (0.030)	0.012 (0.023)
<i>Working more than or equal to 40 hours per week</i> × <i>Earning more than half share of income</i>	-0.018 (0.023)	-0.012 (0.014)	0.002 (0.028)	-0.010 (0.022)
adj.R-squared	0.009	0.006	0.016	0.015
Observations	2,582	3,706	2,582	3,706
Year and SA4 Fixed Effects	Yes	Yes	Yes	Yes
Demographic Variables	Yes	Yes	Yes	Yes
Current Partner Controls	Yes	Yes	Yes	Yes
Childhood Abuse	Yes	Yes	Yes	Yes
Previous Partner Violence	Yes	Yes	Yes	Yes
SA4 Unemployment Rate	Yes	Yes	Yes	Yes
Source of Income	<i>Reported</i>	<i>Prospective</i>	<i>Reported</i>	<i>Prospective</i>

Note: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Each cell is the estimated coefficient from a separate regression.

Robust standard errors are clustered at state/territory-year level and reported in parentheses.

Columns 1 and 3 present estimation results with income distribution constructed using reported income from PSS; columns 2 and 4 display estimation results with relative income constructed using census Table-Builder and average weekly income in SIH following the methodology in equation (1).

SA4 represents the Statistical Area Level 4 in Australian Statistical Geography Standard, including 107 SA4 regions covering the whole nation.

Table A-II. EXPLORING EFFECT HETEROGENEITY — IMPACT OF VIOLATING GENDER NORM ON DOMESTIC ABUSE, FEMALE SAMPLE: BY AGE, INCOME AND EDUCATION

	(1)	(2)	(3)	(4)
	Partner Violence		Emotional Abuse	
<i>Panel A. Age</i>				
<i>Earning more than half share of income</i>	0.012*	0.009*	0.025***	0.007
	(0.006)	(0.005)	(0.008)	(0.005)
<i>Age less than 40</i>	-0.008	-0.000	-0.021*	-0.009
	(0.008)	(0.007)	(0.011)	(0.011)
<i>Earning more than half share of income</i> × <i>Age less than 40</i>	0.009	0.012	0.005	0.015*
	(0.009)	(0.009)	(0.011)	(0.008)
adj.R-squared	0.014	0.012	0.032	0.026
Observations	13,283	18,536	13,282	18,535
<i>Panel B. Income</i>				
<i>Earning more than half share of income</i>	0.011	0.014**	0.027**	0.018**
	(0.010)	(0.006)	(0.011)	(0.008)
<i>Reported weekly couple income in the lower five deciles</i>	0.020	0.023**	0.042***	0.034***
	(0.012)	(0.011)	(0.013)	(0.010)
<i>Earning more than half share of income</i> × <i>Reported weekly couple income in the lower five deciles</i>	0.010	-0.000	0.001	-0.011
	(0.015)	(0.009)	(0.021)	(0.013)
adj.R-squared	0.014	0.012	0.032	0.026
Observations	13,283	18,536	13,282	18,535
<i>Panel C. Education</i>				
<i>Earning more than half share of income</i>	0.012	0.015***	0.033***	0.022***
	(0.008)	(0.005)	(0.006)	(0.006)
<i>Certificates I-IV, high school or below</i>	0.006	0.008	0.018*	0.012
	(0.008)	(0.005)	(0.010)	(0.009)
<i>Earning more than half share of income</i> × <i>Certificates I-IV, high school or below</i>	0.008	-0.001	-0.012	-0.018
	(0.011)	(0.007)	(0.015)	(0.011)
adj.R-squared	0.014	0.012	0.032	0.026
Observations	13,283	18,536	13,282	18,535
Year and SA4 Fixed Effects	Yes	Yes	Yes	Yes
Demographic Variables	Yes	Yes	Yes	Yes
Current Partner Controls	Yes	Yes	Yes	Yes
Childhood Abuse	Yes	Yes	Yes	Yes
Previous Partner Violence	Yes	Yes	Yes	Yes
SA4 Unemployment Rate	Yes	Yes	Yes	Yes
Source of Income	<i>Reported</i>	<i>Prospective</i>	<i>Reported</i>	<i>Prospective</i>

Note: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Each cell is the estimated coefficient from a separate regression.

Robust standard errors are clustered at state/territory-year level and reported in parentheses.

Sample restricted to female respondents.

Columns 1 and 3 present estimation results with income distribution constructed using reported PSS data; columns 2 and 4 display estimation results with relative income constructed with census TableBuilder and average weekly income in SIH following the methodology in equation (1).

SA4 represents the Statistical Area Level 4 in Australian Statistical Geography Standard, including 107 SA4 regions covering the whole nation.