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Does Female Breadwinning Make Partnerships Less Healthy or Less Stable?

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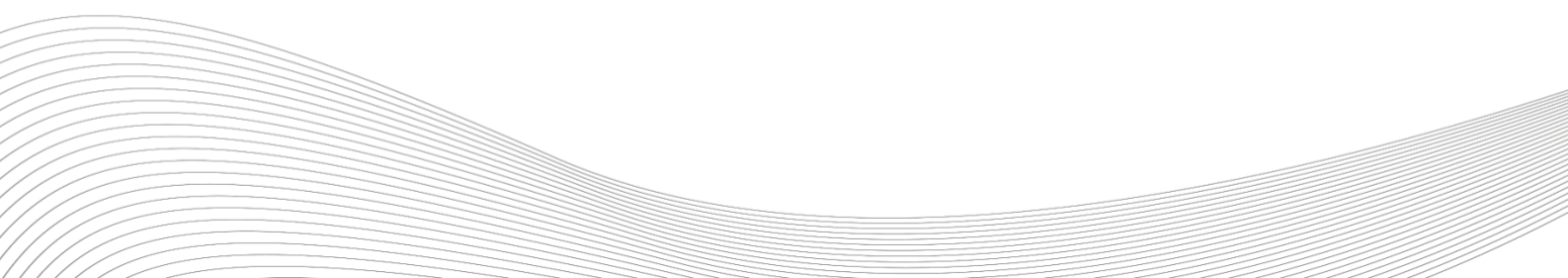
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NON-TECHNICAL SUMMARY

Gender wage differentials have received a substantial amount of attention in the literature, the press, and the political sphere. Efforts are underway in many firms and countries to reduce this differential. However, in many countries men are the primary breadwinners for their families, and individuals may purposefully or unconsciously adapt their behaviour to conform with this social norm. Households that violate this social norm may face consequences. Some recent research suggests that marriages suffer when women out-earn their male partners, with partners in female-breadwinning marriages experiencing less satisfaction with the relationship and a higher rate of partnership dissolution. Increasing gender earnings equality could therefore potentially have an adverse effect in other lifestyle dimensions.

We use data from the Household, Income and Labour Dynamics in Australia (HILDA) survey and the U.S. National Longitudinal Survey of Youth 1997 to examine the relation between partnership satisfaction/stability and female breadwinning. The data we use are more recent than those used previously in the literature and encompass both married and cohabiting partnerships. We find only weak evidence of a negative relation, and much of that evidence is concentrated in cohabiting partnerships which are in general less stable than marriages. This result may reflect changing social norms, plus the greater ease with which cohabiting (as compared to married) women who out-earn their partners can re-partner. We also find evidence of a continuing negative association between female breadwinning and our partnership health measures for men in less-educated partnerships, consistent with the fact that gender role attitudes tend to be more conservative amongst less-educated individuals. Overall, our results suggest that society is adapting through time to changes in the economic realities facing men and women.



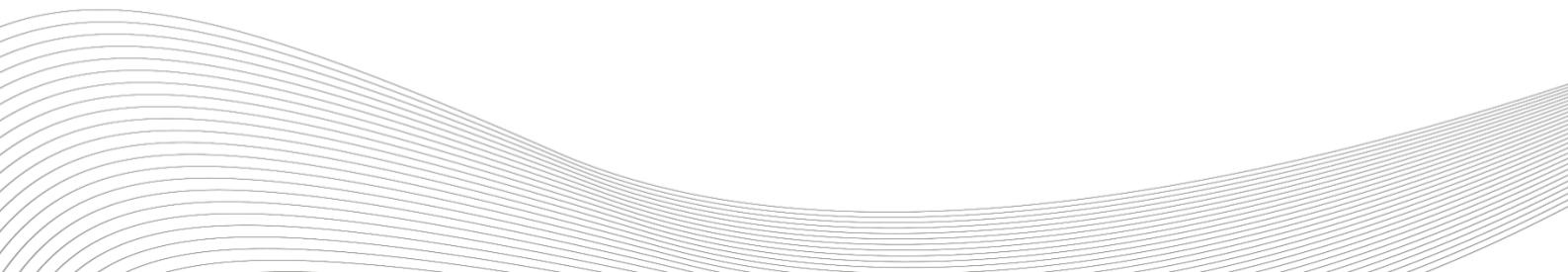
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ABSTRACT

Social norms can have a persistent influence on outcomes. Since the end of the second World War, men have been most households' primary breadwinners in the developed world, and US data from the late twentieth century suggests violation of this norm stresses partnerships. Is this still true? We examine whether female breadwinning makes partnerships less healthy or less stable using more recent US and Australian data. We find a much more modest association, and one that primarily affects young people in cohabiting partnerships and men in less educated partnerships. We interpret these results as reflecting changing social norms, plus the greater ease with which cohabiting women who out-earn their partners can re-partner.

Keywords: marital dissolution; satisfaction; economics of gender; social norms; earnings differentials

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1. Introduction

Examining histograms of women's share of the earned income in mixed-gender US households, Bertrand, Kamenica and Pan (2015) – hereafter BKP – document a sharp decline in density beyond the 50% mark. They follow this observation with econometric evidence of a negative association between female breadwinning and (a) marital satisfaction and (b) partnership stability. They argue that these results, based on data from a variety of national surveys fielded from the late 1960s through the early 2000s, are consistent with US residents' adherence to a norm proscribing that a wife should not earn more than her husband. The implication is that realizing female empowerment in practical terms within the household may create stress – possibly even for women themselves – and that this stress may act as an obstacle to social change.

Yet much has changed in the last fifty years. Academics have perceived these changes – witness the title of Blau et al.'s 2006 edited volume, “The Declining Significance of Gender?” – many of which are reflected in simple statistics. In 1967, only 46% of married women were employed and they contributed only about 26% of family income. In 2015 the comparable figures were 61% and 37%. Gender wage differences also declined significantly during this time period, with full-time, year-round female workers' wages hovering around 60% of comparable male wages in 1967 and 80% in 2015. Consequently, among increasingly prevalent dual-earner households, women earned more than their partners 17.8% of the time in 1987 and 29.3% of the time in 2015 (Bureau of Labor Statistics, 2017).

Social norms related to gender, power, and money seem to be adapting to reflect these changes. For example, while almost 50% of US respondents to the General Social Survey reported that they thought it was better for men to earn the money and women to keep house in 1986, in 2016 only 27% of adults held that opinion (Allred 2018). Yet, social norms are multi-faceted and can have both contemporaneous and lasting effects, as documented in Charles et al. (2018). Have the changes in outward economic realities over the past 50 years led to commensurate reductions in individuals' adherence to traditional gender norms, or have individuals continued to adhere to traditional gender norms even as economic roles have in reality become less gendered, potentially causing stress for those individuals and the partnerships they form? Using US data from 1968 to 2009, Schwartz and Gonalons-Pons (2016) find a

positive link between female breadwinning and divorce risk for marriages formed in the 1960s and 1970s, but not for marriages formed in the 1990s, suggesting that members of later birth cohorts may adhere to updated norms that do not stress partnerships experiencing female breadwinning. However, this mechanism remains speculative, as the data used by Schwartz and Gonalons-Pons do not include measures of marital stress or satisfaction. Such measures would capture the presumed mechanism connecting female breadwinning to partnership dissolution, and are shown in Sayer and Bianchi (2000) to be stronger direct predictors of marital dissolution than measures of the economic power of the woman. Further, the analysis in Schwartz and Gonalons-Pons (2016) only considers marriages, despite the trend away from marriages and towards cohabitations that may experience a different association between female breadwinning and partnership health.

In this paper, we estimate the relation between female breadwinning and a suite of subjective and objective measures of relationship health and stability, using parallel analysis of more recent data from two developed Western countries on both married and cohabiting mixed-gender partnerships. We begin by replicating BKP's analysis using their original data, and then we turn to data from the 21st century – specifically, the National Longitudinal Survey of Youth 1997 (NLSY 1997) and the Household, Income and Labour Dynamics in Australia (HILDA) data, drawn beginning in 2001.¹ With our more recent data, we broaden the analysis to examine cohabiting as well as married couples. We also more clearly distinguish between the implications of results from ordinary least squares (OLS) and fixed effects (FE) specifications. Our raw histograms are similar to those shown in BKP, though less stark particularly for cohabiting couples, but our econometric results do not mimic their findings either for the US or for Australia. We find a much weaker link between female breadwinning and both marital dissolution and marital quality, with some evidence that female breadwinning has more significant consequences for young cohabiting couples. Our results taken together are consistent

¹ Other recent studies applying the BKP method include Zinovyeva and Tverdostup (2018), who conclude using Finnish data that the post-50% drop-off in female income share is mainly a reflection of income convergence for co-working spouses and Wieber and Holst (2015), who find that the post-50% drop-off is significantly smaller in eastern as opposed to western Germany, a result they attribute to the less strict gender role norms in eastern Germany. Folke and Rickne (forthcoming) take a slightly different approach, looking at the impact of job promotions on marital dissolution in Sweden. They find that women but not men who are promoted have double the probability of divorcing in the subsequent eight years as compared to women who are not promoted, and that this effect is strongest for couples who appear to have more conservative gender role attitudes.

with (1) a decline over time in the perceived relevance of a male breadwinning norm and (2) the relationship quality and partnership stability of cohabiting couples being more sensitive than that of married couples to female breadwinning.

2. Replication of BKP

We begin by replicating BKP's results regarding the impact of female breadwinning on marital dissolution and satisfaction. We run identical models on their original samples and on sub-samples of their original data defined by age and education.² In all models, the focal independent variable is an indicator for whether the woman in the partnership earned more than the man in the recent past (henceforth termed "female breadwinning"), and the suite of control variables includes the natural log of his, her, and household income in that same recently-past period; separate dummy variables identifying female and male single-earner couple households in that same period; his and her age and quadratics thereof; and region/state dummies.³

BKP's cross-sectional OLS regressions use reported earnings measures from 1986 and model the following outcomes from the NSFH:

1. *HappyMarriage* (contemporaneous), identifying respondents who, in 1987/88 when asked "Taking things all together, how would you describe your marriage?", reply "Very Happy" (7 on a scale of 1 to 7).
2. *MarriageTrouble* (over the past year), identifying respondents who in 1987/88, when asked "During the past year, have you ever thought that your marriage might be in trouble?", reply "Yes".
3. *DiscussSeparation* (over the past year), identifying respondents who in 1987/88 indicate they have "During the past year, ... discussed the idea of separating?".

² We thank BKP for sending us the code that enabled us to perform these replications. Note that we do not intend to replicate all models whose results BKP report in their paper: our concern is only with the models of relationship dissolution and satisfaction as predicted by female breadwinning plus controls.

³ The NSFH results include controls for his and her race as well as education and, in the models of outcomes 1 through 3 as listed in the text, a dummy indicating the gender of the respondent. The PSID results include year dummies, one-interview-lagged income measures, and in the specifications we replicate, controls for household composition and couple-specific fixed effects.

4. Marital dissolution (taking a value of 1 if the marriage observed at the time of the 1987/88 interview is no longer intact at the time of the second interview which was conducted in 1992/94, 52 to 88 months following the first interview). The sample is in this case restricted to those interviewed in the second wave.

BKP's FE regressions use reported earnings from the prior calendar year and model marital dissolution for couples in the PSID.⁴ Marital dissolution in the following year is reported in the PSID's marital history file (a separate file created by PSID administrators containing histories of marriages observed over the span of the survey years) or inferred by the absence of subsequent couple, but not respondent, surveys.

Table I
Replicating BKP

	Dissolution	NSFH Results (OLS)			PSID Results (FE)	
		Marriage Happy	Marriage Trouble	Discuss Separation	Dissolution (a)	Dissolution (b)
Full Sample:						
Wife Earns More	0.0623** (0.0246)	-0.0679*** (0.0262)	0.0818*** (0.0243)	0.0684*** (0.0190)	0.0031 (0.0023)	0.0035 (0.0024)
Lagged Wife Earns More					0.0050** (0.0025)	0.0077*** (0.0026)
Number of Observations	3,439	7,659	7,520	7,507	72,169	69,454
Number of Fixed Effects					7,893	6,425
More Educated Sample:						
Wife Earns More	0.1193*** (0.0374)	-0.0846* (0.0432)	0.0875** (0.0415)	0.0910*** (0.0319)		-0.0006 (0.0041)
Lagged Wife Earns More						0.0042 (0.0048)
Number of Observations	1,195	2,540	2,498	2,492		8,248
Number of Fixed Effects						748
Less Educated Sample:						
Wife Earns More	-0.0053 (0.0432)	-0.0389 (0.0467)	0.0536 (0.0417)	0.0250 (0.0286)		0.0024 (0.0029)
Lagged Wife Earns More						0.0094*** (0.0033)

⁴ Data related to relationship quality are not available in the PSID, which first measured phenomena akin to satisfaction or happiness in 2016, as part of a "Wellbeing and Daily Life" component.

Number of Observations	1,266	2,993	2,934	2,929	48,496
Number of Fixed Effects					4,131
Older Sample:					
Wife Earns More	0.0798**	-0.0653*	0.1077***	0.1010***	0.0038
	(0.0318)	(0.0392)	(0.0348)	(0.0269)	(0.0027)
Lagged Wife Earns More					0.0015
					(0.0028)
Number of Observations	1,724	3,869	3,798	3,791	40,362
Number of Fixed Effects					4,047
Younger Sample:					
Wife Earns More	0.0384	-0.0803**	0.0424	0.0242	0.0025
	(0.0399)	(0.0328)	(0.0329)	(0.0266)	(0.0046)
Lagged Wife Earns More					0.0152***
					(0.0050)
Number of Observations	1,715	3,790	3,722	3,716	28,695
Number of Fixed Effects					4,254

(a) Note these standard errors have been adjusted to correct for singleton observations and are somewhat smaller than those reported by BKP.

(b) Singleton observations are dropped and each partner's age has been adjusted to that first reported and incremented by wave to address the inconsistent age reporting in the PSID. The sample is then selected based on this age.

In both the case of the NSFH and the PSID, "More Educated" means both partners have some college or more, "Less Educated" means neither partner has more than a high school degree, "Older" means the wife is at least age 35, and "Younger" means the wife is less than age 35.

All specifications include the log of her earnings, the log of his earnings, the log of household earnings, dummy variables identifying households in which she earns all or none of the household income, and quadratics in each partner's age. The PSID specifications also include lagged values of all the income variables.

The NSFH specifications include controls for region (3) and each partner's education (4) and race (3). In the case of the satisfaction measures a dummy for the respondent's gender is also included.

The PSID specifications include 33 year dummies and 56 region dummies.

Robust standard errors in parentheses: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table I shows the results of these models for the full samples used by BKP and for sub-samples of marriages with older (over 35, born mostly during the Second World War) and younger (under 35, born mostly in the late 1950s) women, and with more-educated and less-educated partnerships. We see that in the OLS results using the NSFH, the primary marriages in which female breadwinning has either a negative effect on marital satisfaction or a positive effect on dissolution are those of highly-educated individuals and those including women over the age of 35. OLS estimates based on the PSID sample (not reported here) do not yield statistically significant results, whether dissolution is measured one or, to more closely match the NSFH timeline and recognize that ending a marriage takes time, two years into the future. However,

couple-specific FE estimates from the PSID do indicate that female breadwinning and marital dissolution are positively related. BKP's preferred FE model includes an indicator for female breadwinning in the most recent period as well as a measure calculated from the previous wave. As shown in Table I, only the lagged measure has a statistically significant coefficient.⁵ The PSID subsample results also differ from the NSFH results in that female breadwinning is positively associated with dissolution for less-educated, versus more-educated, and for younger, versus older, respondents. These results are robust to alternative specifications including cubics in each partner's log earnings, a continuous measure of her share of the couple's earnings, and controls for household composition.

While at first glance the differences between the cross-sectional (OLS) and fixed-effects (FE) results may seem counter-intuitive, they could be seen as broadly consistent with declining relevance of the male breadwinning norm together with the phenomenon of positive assortative matching based on permanent income. This latter force is shown in Binder and Lam (2018) to be capable of generating the sharp drop-off in density above the 50% point in a histogram of female income share, under the assumption that there is a population-wide gender gap in permanent income, an assumption that matches reality for the time period covered in this sample. That young couples transitioning into female breadwinning in the PSID are more likely to separate while young couples with female breadwinners in the NSFH are not may indicate that younger couples are not as stressed by female breadwinning in steady state, due to generational changes in social norms, but that a young partnered woman may perceive a transition into her breadwinning – in a world with higher male than female income on average and within partnerships – as a signal that she could find a higher-earning partner. Her youth and the youth of the partnership make such a prospect more realistic and the separation less personally costly than it would be for an older woman in a partnership of more years' duration. By contrast, only those partnerships containing older women are impacted by female breadwinning in the NSFH cross-sectional models due, we conjecture, to the greater importance of the male breadwinning norm for their cohort than for the younger cohort.

⁵ In Table 1 we provide FE estimates (column a) using the same sample as BKP but correcting the standard errors for singleton observations. We also provide FE estimates (column b) correcting for inconsistent age reporting. The results are robust to these minor edits. Note further that interviews were conducted annually from 1968 through 1997 and biennially from 1999 through 2007, meaning that the lagged measure of female breadwinning may be from one or two years prior.

The cross-sectional results by education lend further support to this story. In a world with positive assortative matching on income, skill-biased technological change has meant that more educated women are more able than less educated women to be able to find a higher-earning partner if they choose to dissolve their current partnership. Because the woman's access to higher-earning alternative partners is greater in more highly-educated couples, we see the negative effects of female breadwinning mainly for such couples in the NSFH cross-section.⁶ In the fixed effects specifications using the PSID, the effect of lagged female breadwinning is a positive and significant predictor of marital dissolution for less educated but not for more educated women and their partners, running counter to the mechanisms suggested above. Further investigation reveals that in the PSID and NSFH data, between 33% and 51% of the women in less-educated partnerships who out-earn their partners earn all of the household's income, compared to only 20% of those in more-educated partnerships. It may be that the higher risk of dissolution associated with transitioning to female breadwinning for these less-educated partnerships arises from more impactful coincident stressors, such as the loss of job and/or health of the man. This conjecture is supported by the far higher incidence of poor male health reports in less-educated NSFH partnerships in which women earn all the money (10.4%, compared to 1.8% in highly-educated female-breadwinning partnerships). However, the sub-sample of more-educated couples with lagged income in the PSID is small relative to the sub-sample of less-educated couples, so the apparent difference in effect significance by education level may be spurious.

3. Emergent Hypotheses and Empirical Implications

BKP's stated interpretation of the finding that the wife's relative earnings positively relate to the probability of a couple's divorce is predicated on the assumption that one or both partner's utility functions include not only all the usual arguments, but also a measure of the degree to which the partnership conforms to a social norm that the husband should be the primary breadwinner. Deviations from this norm presumably then reduce the stream of utility flows from the partnership for at least one of the partners, and would lead a partnership to dissolve if this negative effect is large enough to push the perceived future value of the

⁶ Ong, Yu, and Zhang (2018) provide an alternative story of marriage-matching dynamics as women's incomes have risen in China.

relationship below the perceived future value of the next-best alternative for either partner, after allowing for any mutually acceptable intrahousehold transfers. Notably, the other arguments to utility would reasonably include intangible phenomena like emotional support and sexual services, but also material benefits, such as the income brought in by one's partner that one is then able to share.

However, even in cases where the present discounted utility flows from the present partnership fall below what one perceives would be expected should this partnership end, terminating a relationship is not a costless exercise. Termination costs (even if temporary) act as an additional reason to stay together, and are arguably lower for cohabiting as compared to married couples: the latter, having taken steps to formalize their relationship before the law and before family and friends, must take steps to formally end their relationship. At the same time, couples may self-select into cohabitation based on their more progressive beliefs compared to those couples who self-select into marriage. This difference in ideologies may imply that cohabitating individuals lose less utility than married individuals do when their partnership violates conservative norms such as the male-breadwinner model. If this is true, then despite lower dissolution costs for cohabiting than for married couples, female breadwinning in cohabiting couples may be less likely than in married couples to cause subsequent relationship dissolution.

The mechanism connecting female breadwinning to relationship dissolution, if the above utility-and cost-based arguments are correct, might manifest before actual dissolution in the form of lower measures of reported relationship satisfaction or health. Indeed, in the presence of dissolution costs, one might expect satisfaction levels to respond relatively quickly while dissolution may take some time. This logic suggests that models with longer time gaps are more appropriate for examining the link between female breadwinning and relationship dissolution and helps explain why BKP found significant results on dissolution for the NSFH sample looking forward as many as five years, but needed to include lagged income measures to obtain a strong result using the more nearly annual reports from the PSID.

Summarizing the above arguments, we hypothesize that relative to married couples, cohabiting couples may find it less painful to violate norms and yet easier to dissolve, making the association between female breadwinning and relationship dissolution in cohabiting versus

married couples an empirical question; that *ceteris paribus*, the higher earner in a couple has a weaker pecuniary reason to stay in the relationship; and that measures of subjective relationship health or satisfaction may be informative about the utility effects of norm-related, pecuniary, and other (e.g., emotional or sexual) factors driving the later choice of whether to stay in a relationship or dissolve it.

Identifying the causal impact of female breadwinning on relationship dissolution, however, is challenging. First, an OLS model of satisfaction or dissolution on female breadwinning would identify the impact of female breadwinning in large part by comparing outcomes for couples in which he always earns more to other couples, a recipe for upward bias in estimating the effect of female breadwinning on partnership dissolution if unobserved characteristics of couples make them both more likely to have male breadwinners and more likely to stay together. Couple-level fixed effect models by contrast identify the impact of female breadwinning by using exclusively within-couple transitions in earnings dominance. Thus, FE models should mitigate the selection problem. In the case of satisfaction measures, FE models are particularly attractive because they rely on intrapersonal rather than interpersonal utility comparisons for identification. Turning to FE estimation is not, however, without its problems. Breadwinning transitions within couples over time are not commonly observed in most panel data sets and FE models exacerbate errors-in-variables problems. Over sixty percent of PSID couples examined in BKP never experience a change in female breadwinning, and many couples that do experience breadwinning transitions experience only one or two across the survey window, which may be indicative of reporting errors or transitory shocks.⁷ Such errors will tend to bias estimated effects towards zero.

Second, both the OLS and the FE specifications include not only a measure of female breadwinning, but also controls for his, her, and total household earnings. Thus, earnings are assumed to be exogenous, even though individuals choose whether and how much to work. A particular concern is that individuals who are or become unhappy in their relationship may take steps to become more financially independent before ending that relationship. Higher individual

⁷ The same is true in the more recent panels employed here.

earnings could therefore be a consequence, not (only) a cause, of relationship dissolution. Longer intervals between the income and outcome measures should help mitigate this problem.

Bearing in mind the above framing of the problem and empirical concerns, in the remainder of this paper we use multi-national data more recent than that used by BKP; examine separately married and cohabiting couples; apply both OLS and FE modelling and differentiate carefully between the implications of these results; examine several aspects of subjective relationship health and satisfaction; and, recognizing that these subjective reports are likely potential leading indicators of dissolution, include more lagged measures of female breadwinning when modelling dissolution.

4. Extension: US and Australia

We proceed now using data from the US and Australia. We choose these data sets because both provide panel data, and while the US and Australia are ranked similarly by the World Economic Forum (<http://reports.weforum.org/global-gender-gap-report-2016/rankings/>) as regards gender parity, each data set is the product of a distinct sampling and survey approach. For the US, we use the NLSY97, in which after sample restrictions⁸ we have a maximum of 21,395 observations on 5,851 partnerships spanning the years 1998-2013 and supplemented by 2015 relationship data. These data constitute a sample of persons born between 1980 and 1984; none are older than age 33 when last observed. Only the respondent, and not his/her partner, is interviewed for the NLSY97. For Australia, we use the HILDA data (see Watson and Wooden 2012 for a description), in which after sample restrictions⁹ we have a maximum of 43,865 observations on 7,702 partnerships spanning the years 2001-2016. These data include all persons of working age, and both the respondent and his/her partner are asked to complete questionnaires. All analyses are conducted separately for married and cohabiting couples. Sample sizes vary with the specification. Sample means by marital status for the most inclusive

⁸ We restricted the NLSY97 sample to mixed-gender couples observed in non-overlapping, continuous relationships, who are over the age of 18, were not (if between ages 18 and 23) enrolled in high school or enrolled full-time in school in the prior year, and report age, education, and non-negative wage, salary, and self-employment earnings.

⁹ We restricted the HILDA sample to mixed-gender couples observed in non-overlapping, continuous relationships, who were between the ages of 18 and 64/62 for men/women respectively, were not enrolled full-time in school, and report age, education, immigrant status, city status, household composition and non-negative wage, salary, and self-employment earnings. We note that Kidd (2017) performed a contemporaneous analysis using the HILDA data of the impact of female breadwinning on outcomes in Australia.

set of explanatory variables for the full sample are reported in Appendix A for the NLSY97 and in Appendix B for the HILDA data.

The earnings measures used in our analysis derive from the tax reporting period preceding the interview date. The tax year in Australia runs from July 1 through June 30; the tax year in the US coincides with the calendar year. In the case of Australia, the vast majority of interviews are conducted in the second half of the year, meaning that the income reports date from the period between 1 and 18 months prior to the survey date. In the case of the US, interviews are bunched in the last quarter of the year or the first quarter of the following year, meaning that the income reports date from the period between 9 and 27 months prior to the interview date. Satisfaction is reported at the time of the interview; dissolution is captured by looking twelve months following the interview date. To match our conjectured process whereby breadwinning status may drive feelings of relationship satisfaction which may subsequently cause relationship dissolution, we use these prior but fairly recent income measures to model satisfaction at the time of the interview, and to predict subsequent relationship dissolution use this and even more distant income measures. Given that income is measured within a few months of satisfaction for some Australian observations, we note that reverse-causality – i.e., relationship satisfaction driving relative earnings, rather than the reverse – may afflict our Australian results.

Figure I (Panel A: US; Panel B: Australia) plots histograms of female income share in the first observation of all couples in each data set, by marital status. This figure shows that in these newer data, the sharp drop-off after the 0.5 mark is still perceptible. That the drop-off is less pronounced for cohabiting couples suggests that some of the sharp change may be explained by more pronounced specialization of labor in more committed partnerships.

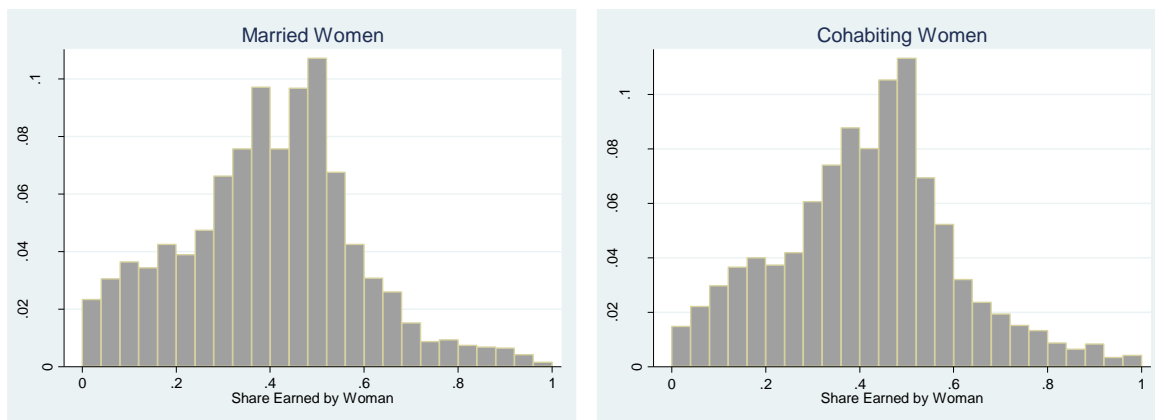
Given the sensitivity of these histograms to couples reporting the same income (see Binder and Lam 2018 for evidence from the US and Eriksson and Stenberg 2015 for evidence from Sweden) and the increased likelihood that his income is overstated and hers understated when she earns more (see Murray-Close and Heggeness 2018 for evidence from the US), we also present results (Figure II) excluding those couples who self-report the same earnings. Equal earnings are reported by about 6% of US couples irrespective of married or cohabiting status, the vast majority of whom are not self-employed; 4% of married Australian couples, all of whom are

self-employed; and 2% of cohabiting Australian couples, most of whom are not self-employed. Figure II shows her income share peaking around 40% rather than 50% with a much less marked drop off, except in the case of married couples in Australia. For married couples in Australia, the histogram still closely resembles those reported by BKP.

Figure I

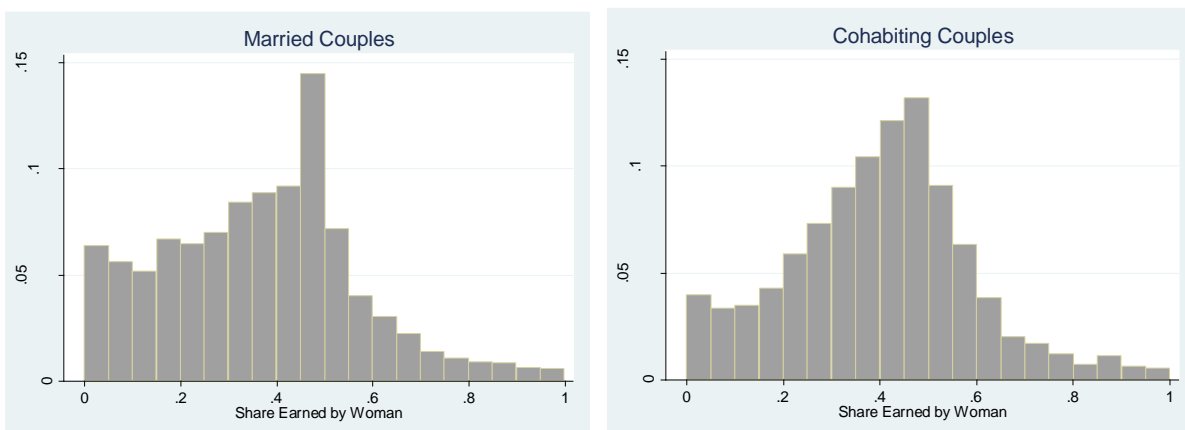
Distribution of Relative Income

Panel A: United States



The data are from the 1997-2013 waves of the NLSY97 data. The sample includes married or cohabiting mixed-gender couples where the man and woman both earn positive income, the respondent is not enrolled full-time in college, and both partners are between 18 and 58 years of age. For each couple, we use the observation from the first year that the couple is in the panel. Each bar captures a 0.04 relative income bin. Data captures 3078 married couples and 2623 cohabiting couples.

Panel B: Australia

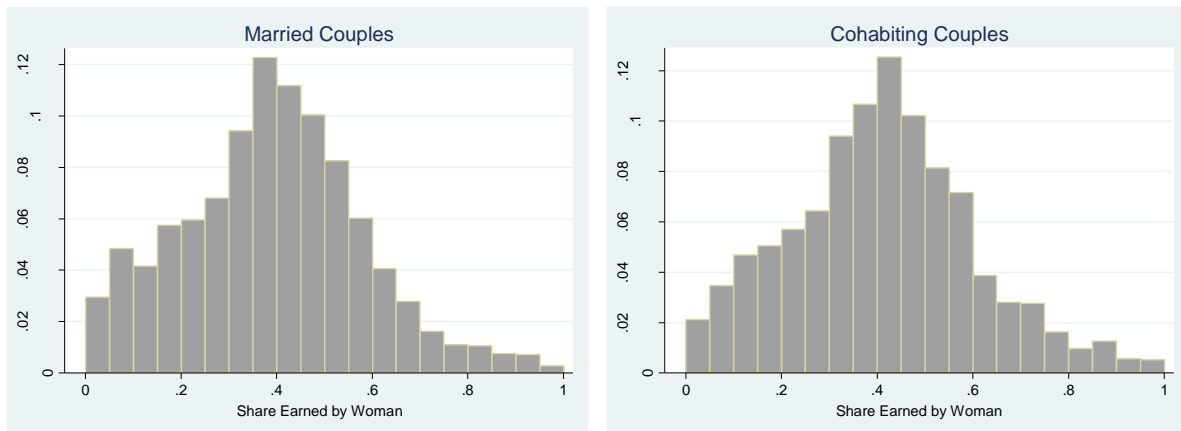


The data are from the 2001-2016 waves of the HILDA data. The sample includes married or cohabiting mixed-gender couples where the man and woman both earn positive income, are not enrolled full-time in school (if aged 18-23), and are between 18 and 62 (64 for men) years of age. For each couple, we use the observation from the first year that the couple is in the panel. Each bar captures a 0.05 relative income bin. Data captures 4515 married couples and 3094 cohabiting couples.

Figure II

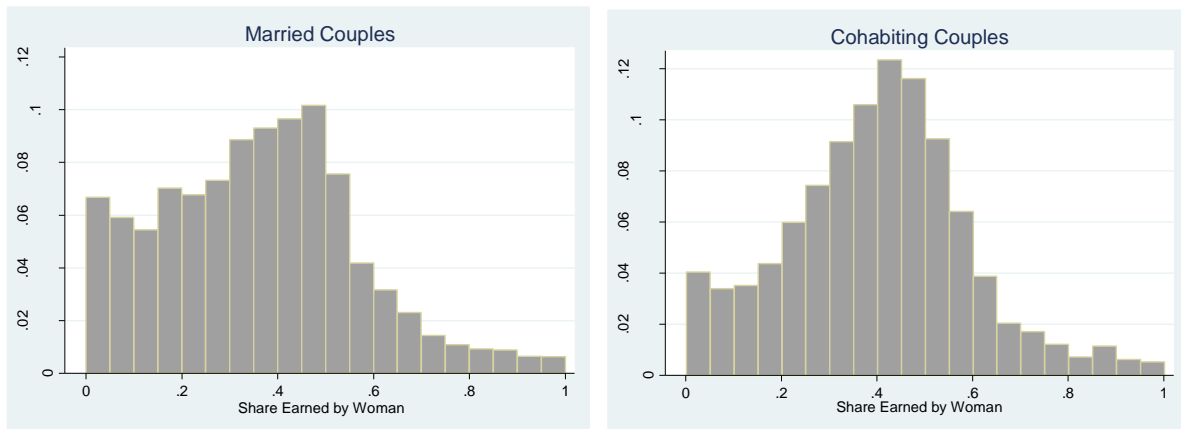
Distribution of Relative Income Excluding Those with Matching Income

Panel A: United States



The data are from the 1997-2013 waves of the NLSY97 data. The sample includes married or cohabiting mixed-gender couples where the man and woman both earn positive income, the respondent is not enrolled full-time in college, and both partners are between 18 and 58 years of age. For each couple, we use the observation from the first year that the couple is in the panel. 169 married couples and 167 cohabiting couples with matching earnings are dropped. Each bar captures a 0.05 relative income bin. Data captures 2909 married couples and 2456 cohabiting couples.

Panel B: Australia



The data are from the 2001-2016 waves of the HILDA data. The sample includes married or cohabiting mixed-gender couples where the man and woman both earn positive income, are not enrolled full-time in school (if aged 18-23), and are between 18 and 62 (64 for men) years of age. For each couple, we use the observation from the first year that the couple is in the panel. 217 married couples and 55 cohabiting couples with matching earnings are dropped. Each bar captures a 0.05 relative income bin. Data captures 4337 married couples and 3039 cohabiting couples.

4.1 Dissolution: US and Australia

We measure the effect of female breadwinning on partnership dissolution in several different ways, each of which is necessarily estimated on a subtly different sample. Most of the couple-year observations can be used when dissolution is measured in the year following the survey and female breadwinning calculated from that income report is the sole measure of female breadwinning in the model. When lagged measures of female breadwinning are included (as in most of BKP's PSID regressions), only couples observed for two consecutive years enter the sample. Finally, when we look at dissolution over the five years following the income report (to mimic BKP's NSFH analysis), the sample is further circumscribed.¹⁰ We run both cross-sectional and fixed-effects models including the focal dummy for female breadwinning plus controls that are comparable to those included in the original BKP models.

Table II shows the coefficient estimates for the female breadwinning indicators using the simplest BKP specification. US results are reported in the top half of the table; Australian results appear in the bottom half. The first six columns show results for cohabiting couples and the latter four columns show results for married couples. Within each partnership type, we first present models of dissolution looking one year forward and then models of dissolution looking five years forward. We include female breadwinning indicators based on income from the year prior to the current survey wave, and in specifications – labelled “lagged” in the table – from the year prior to the previous survey wave. Models of dissolution one year forward including only the current (and not the lagged) measure of female breadwinning are reported for cohabiting couples, given the substantial reduction in sample size when these (on average) relatively short-lived relationships are required to have lasted two or more years.¹¹

¹⁰ Like BKP, we do not classify marriages we observe ending with the death of a spouse as dissolutions. We cannot, however, distinguish between cohabitations that end in separation and those that end in a death. Cohabitations that end in a marriage are not treated as dissolutions until/unless that marriage ends.

¹¹ Forty percent of the cohabiting sample is lost by requiring information on lagged income, versus only twenty percent of the married sample. The coefficient on female breadwinning is not significant in the married sample when including only the current measure.

Table II
Relationship Dissolution

US Sample	Cohabiting						Married			
	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE
	One year forward		One year forward		Five years forward		One year forward		Five years forward	
Woman Earns More	0.0119 (0.0123)	0.0295* (0.0152)	0.0414** (0.0181)	0.0563*** (0.0218)	-0.0050 (0.0244)	0.0054 (0.0088)	0.0098 (0.0081)	0.0063 (0.0088)	0.0185 (0.0127)	-0.0091 (0.0103)
Lagged Woman Earns More			0.0139 (0.0190)	0.0199 (0.0230)			-0.0113 (0.0073)	-0.0102 (0.0073)		
Joint p-value			0.0266	0.0345			0.2618	0.3048		
Number of Observations	7,433	5,743	3,437	2,763	4,021	2,202	10,287	9,633	7,320	6,418
Number of Fixed Effects		1,690		846		673		2,120		1,503
Australian Sample										
	Cohabiting						Married			
	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE
	One year forward		One year forward		Five years forward		One year forward		Five years forward	
Woman Earns More	0.0005 (0.0083)	-0.0120 (0.0097)	-0.0008 (0.0106)	-0.0032 (0.0122)	0.0096 (0.0172)	0.0021 (0.0060)	-0.0001 (0.0031)	-0.0048 (0.0031)	0.0089* (0.0049)	0.0047 (0.0042)
Lagged Woman Earns More			0.0045 (0.0105)	-0.0131 (0.0103)			0.0026 (0.0032)	0.0006 (0.0036)		
Joint p-value			0.9032	0.4447			0.6619	0.2969		
Number of Observations	9,875	8,599	6,041	5,312	4,590	3,403	24,521	23,891	17,232	16,291
Number of Fixed Effects		2,078		1,260		842		3,639		2,509

All specifications include the log of her earnings, the log of his earnings, the log of household earnings, dummy variables identifying households in which she earns all or none of the household earnings, and quadratics in each partner's age. All FE specifications exclude singleton observations.

All specifications with lagged Wife Earns More include lags of the log of her earnings, the log of his earnings, the log of household earnings, and the dummy variables identifying households in which she earns all or none of household earnings.

All the Australian specifications include controls for state (7), year (13) and each partner's education (7), aboriginal and immigration status (3).

All the US specifications include controls for region (4), year (13), and each partner's education (5), ethnicity, and race (3).

Robust standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1. "Joint p-value" refers to the p-value for a test that the coefficients on both measures of female breadwinning are jointly zero.

Table II shows that in the more recent and younger US sample there is no significant relation between female breadwinning and marital dissolution, but there is some evidence of a positive association between female breadwinning and the near-term dissolution of cohabiting relationships in both OLS and FE models. These results are robust to alternative specifications, including cubics in his and her log earned income and additional covariates even beyond those captured by BKP (specifically, controls for the respondent's disability and educational enrolment status, household composition (7 indicators), urbanicity (2 indicators), and measures of relationship duration, including for married couples a dummy variable indicating whether they had cohabited prior to marriage and the length of any such cohabitation). The only specification in which the coefficient on the indicator of female breadwinning becomes less statistically significant is that which controls for her share of household income. In these specifications, the continuous measure of her income share has a positive sign but is not generally significant, even at the 10% level. The indicator of female breadwinning is not significant in specifications using a five-year time horizon.

Results for Australia, shown in the bottom half of Table II, demonstrate still less evidence of a significant relation between female breadwinning and dissolution. This relation is never significant for cohabiting couples. For married couples, in some OLS models using a five-year time horizon there is a weak positive relation; in some FE models including both current and lagged income measures there is a negative relation. Neither of these results is robust to an array of alternative specifications including cubics in his and her log earned income, a continuous measure of her relative share of income, and the addition of a host of additional control variables including seven household composition variables, dummy variables for his and her disability and educational enrolment status, two dummy variables for urbanicity, and measures of relationship duration, including for married couples a dummy variable indicating whether they had cohabited prior to marriage and the length of any such cohabitation.

Based on these results, we conclude that in general, social norms that are violated by female breadwinning are less important to people born more recently than to those in the original BKP sample. We interpret our statistically significant results for cohabiters in the US as consistent with the idea that the cost of terminating a cohabiting relationship is smaller than the

cost of terminating a marriage, making it easier for people who have weaker reasons to stay in a partnership – such as women who out-earn their partners in a world with a positive male-female wage gap – to in fact exit. Thus, women in less committed relationships in the US appear more likely to seek alternative partners when they out-earn their partner, particularly but not exclusively when transitioning into that state. In Australia, unlike in most US states, cohabiting (known as “de facto partnership”) is recognized formally in family law, the tax code, social security and other institutions, a form of social normalization of the idea that cohabiters are in fact committed to one another. Therefore, ending such a relationship may be more costly than it is in the US, which may help to explain the lack of parallel results for the Australian sample.

4.2 Relationship quality: US and Australia

Our satisfaction measures for the NLSY97 are all recorded on a scale of 0 to 10 (rescaled as necessary so that higher values indicate higher relationship quality), and are based on answers provided by the responding household head only, so the answers of women and men are mingled in the data. These measures, the questions on which they are based, and the waves during which the data were collected are indicated below, where ‘P’ stands for “this spouse/partner”:

Close: “How close do you feel towards P?” Waves 2000-2008.

Partcare: “How much do you feel that P cares about you?” Waves 2000-2008.

NoConflict: “Overall what is your relationship like with P? ... how would you rate your relationship with P?” Waves 2000-2008. Answer scale reverse-coded such that 0 is ‘a lot of conflict’ and 10 is ‘no conflict’.

Commit: “How committed would you say you are to P, all things considered?” Waves 2005-2008.

For the HILDA, we have responses from both partners. These measures, the questions on which they are based, their answer scales, and the waves during which the data were collected are indicated below:

Partner: “Please indicate ... how satisfied or dissatisfied you currently are with ... your relationship with your partner.” Scale: 0-10. All waves.

Love: “How much do you love your spouse/partner?” Scale: 1-5. Waves 2003, 2006, 2009, 2012, and 2016.

NoProblem: “How many problems are there in your relationship?” Scale: 1-5. Waves 2003, 2006, 2009, 2012, and 2016. Answer scale reverse-coded such that 0 is ‘a lot of problems’ and 10 is ‘no problems’.

Needs: “How well does your spouse meet your needs?” Scale: 1-5. Waves 2003, 2006, 2009, 2012, and 2016.

Expect: “To what extent has your relationship met your original expectations?” Scale: 1-5. Waves 2003, 2006, 2009, 2012, and 2016.

Using the newer US and Australian data, we again run both cross-sectional (OLS) and fixed-effects (FE) models, and include the focal dummy for female breadwinning in the year prior to the survey, plus controls that are as similar as possible to those included in the original BKP model. We also examine responses for men and women separately for the Australian data where we have responses for both partners. As we did with the dissolution models, we run an array of other specifications, reporting only the simplest BKP specification and discussing results that are robust across specifications. We tabulate the results from models that treat the above relationship quality measures as continuous variables, but for comparison we also discuss in the text the results from modelling – as BKP do – binary indicators of relationship quality, with (in most cases) responses taking the best possible value coded as 1, and all other responses coded as 0.¹² Tables III and IV show the results for the US and Australia, respectively.

¹² In order to obtain a roughly even split of observations into the “0” and “1” categories, dummy measures for NoConflict in the NLSY97 data were constructed by assigning the value “1” to the top 2 or the top 4 values, rather than only the top value, of the original answer scale. The dummy measure for Partner in the HILDA data was similarly constructed by assigning the value “1” to the top 2 values of the original answer scale.

Table III
Relationship Quality in the US

Respondent's Response	Cohabiting							
	OLS Close	FE Close	OLS Partcare	FE Partcare	OLS NoConflict	FE NoConflict	OLS Commit	FE Commit
Woman Earns More	-0.0488 (0.0704)	0.0476 (0.0893)	-0.0232 (0.0630)	-0.0609 (0.0762)	-0.0977 (0.1398)	0.1293 (0.1885)	-0.1872** (0.0953)	-0.1279 (0.1778)
Number of Observations	3,901	2,760	3,904	2,764	3,906	2,770	2,357	1,568
Number of Fixed Effects		951		952		954		611
Respondent's Response	Married							
	OLS Close	FE Close	OLS Partcare	FE Partcare	OLS NoConflict	FE NoConflict	OLS Commit	FE Commit
Woman Earns More	0.0051 (0.0684)	-0.0022 (0.0598)	0.0336 (0.0552)	-0.0239 (0.0518)	-0.0563 (0.1352)	-0.1979 (0.1496)	0.0235 (0.0593)	-0.1229* (0.0685)
Number of Observations	5,972	5,378	5,972	5,379	5,970	5,377	4,440	3,872
Number of Fixed Effects		1,486		1,487		1,486		1,313

All specifications include the log of her earnings, the log of his earnings, the log of household earnings, dummy variables identifying households in which she earns all or none of the household earnings, and quadratics in each partner's age. FE specifications exclude singletons.

All the US specifications include controls for region (4), year (13), and each partner's education (5), ethnicity, and race (3).

Robust standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1

Table III shows a lack of relation overall between female breadwinning and our measures of relationship health for the young US cohort, with the exception being the measure of commitment. Female breadwinning is negatively and significantly related to this measure for cohabiting couples in OLS models, and marginally so for married couples in the FE specification. When we model our relationship quality measures as binary indicators rather than continuous variables (results available upon request), we again see only scattered effects. Out of 60 specifications, female breadwinning is significant in only six. The strongest effect, economically speaking, is a positive association with the “Partner Care” variable for married couples in FE models. A reduction in reported closeness is observed in some OLS models, especially for cohabiting couples. These results lend further credibility to the market-dynamics mechanism proposed above whereby female breadwinning, particularly in cohabiting couples, signals that the woman may be able to find a higher-earning partner: a state of the world in which commitment, closeness, or feelings of being cared for in the current partnership may weaken.

Table IV shows that for married couples (bottom panel) there is no significant relation in OLS or FE specifications between female breadwinning and our continuous measures of relationship quality in the Australian data. When we use a binary measure of relationship quality, the only robust effect is that married men report fewer problems when transitioning into female breadwinning arrangements. The top panel of Table IV shows that there is likewise no significant association between female breadwinning and relationship quality as perceived by cohabiting women, but that cohabiting men report more love, and that their needs and expectations are better met, when they are out-earned in the cross-sectional models. Yet in the FE specifications, cohabiting men report significantly more problems and that their needs are less well met when the couple transitions into female breadwinning, results that persist when we use binary measures of relationship quality. While broadly consistent with the market-dynamics mechanism we conjecture to underpin our US results, these results for cohabiting men are the exception to an overall lack of importance of the male breadwinning norm in these recent Australian data.

Table IV
Relationship Quality in Australia

		Cohabiting									
		OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE
		Partner	Partner	Love	Love	No- Problem	No- Problem	Needs	Needs	Expect	Expect
His Response											
Woman Earns More		0.0904 (0.0697)	0.0558 (0.0632)	0.0561* (0.0328)	-0.0199 (0.0577)	0.0230 (0.0574)	-0.1728* (0.0911)	0.0784* (0.0462)	-0.1501* (0.0788)	0.0845* (0.0469)	-0.0806 (0.0792)
Number of:											
Observations		9,521	8,227	2,978	1,446	2,978	1,450	2,978	1,450	2,976	1,448
Fixed Effects			2,015		555		558		558		556
Her Response											
Woman Earns More		-0.0242 (0.0754)	-0.0333 (0.0676)	0.0438 (0.0372)	0.0116 (0.0617)	0.0127 (0.0628)	-0.0700 (0.1004)	0.0085 (0.0491)	0.0217 (0.0679)	-0.0405 (0.0515)	0.0210 (0.0826)
Number of:											
Observations		9,755	8,440	3,103	1,506	3,105	1,508	3,105	1,508	3,102	1,505
Fixed Effects			2,052		581		582		582		580
		Married									
		OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE
		Partner	Partner	Love	Love	No- Problem	No- Problem	Needs	Needs	Expect	Expect
His Response											
Woman Earns More		-0.0595 (0.0532)	-0.0195 (0.0361)	0.0136 (0.0240)	0.0225 (0.0253)	-0.0123 (0.0404)	-0.0189 (0.0254)	0.0215 (0.0340)	0.0098 (0.0335)	-0.0031 (0.0333)	0.0301 (0.0330)
Number of:											
Observations		30,493	29,608	9,490	7,958	9,488	7,964	9,484	7,958	9,476	7,950
Fixed Effects			4,150		2,544		2,547		2,546		2,543
Her Response											
Woman Earns More		-0.0882 (0.0556)	-0.0309 (0.0358)	-0.0150 (0.0284)	0.0203 (0.0266)	0.0324 (0.0400)	0.0544 (0.0457)	-0.0385 (0.0372)	0.0399 (0.0347)	-0.0281 (0.0370)	-0.0113 (0.0361)

Number of:										
Observations	30,946	30,075	9,621	8,090	9,639	8,110	9,639	8,111	9,623	8,084
Fixed Effects		4,215		2,586		2,590		2,590		2,590

All specifications include the log of her earnings, the log of his earnings, the log of household earnings, dummy variables identifying households in which she earns all or none of the household earnings, and quadratics in each partner's age. FE specifications exclude singleton observations.

All the Australian specifications include controls for state (7), year (13) and each partner's education (7), aboriginal and immigration status (3).

Robust standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1

5. Robustness

To further dissect these results, we ran a series of sensitivity checks using both the NLSY97 and the HILDA data, described briefly here. Full results for all specifications are available upon request from the authors.

We first re-ran our models on a sub-sample of the HILDA that was close in age to the couples in our NLSY97 sample: specifically, we selected those Australia-residing couples in which at least one partner was born after 1977 (all those in the NLSY97 sample were born between 1980 and 84). See Appendix Table C for results using this sample regarding relationship quality. We find that in cohabiting relationships in Australia that satisfy this age restriction, men report more problems and less meeting of their needs when the couple transitions into female breadwinning, as is the case for the full sample. The women in these young cohabiting partnerships also report a range of negative signals of relationship quality when they are in, or transition into, a state of female breadwinning. Female breadwinning is associated with women in young cohabiting relationships in Australia reporting less satisfaction with their partner in both OLS and FE models; less meeting of expectations in the cross-section; and more problems when transitioning. Despite this, and mirroring the full sample, we find no evidence of higher dissolution risk for these young cohabiters. Married couples in Australia that satisfy the age restriction above report being less satisfied with their partners, and married women report less love of their partner, when the prior year featured female breadwinning, but we see no significant change in relationship satisfaction in the FE models. We do find some evidence of higher five-year dissolution rates in OLS but not FE specifications for couples where these younger women earn more than their partners. We conclude from the above results that compared to our full-sample results, female breadwinning is more negatively associated with relationship quality for young partnerships in Australia, and in the largest number of dimensions for young cohabiting women.

Breaking down the NLSY97 results by gender of the respondent (see Appendix Table D), we find that in the US it is women, not men, whose responses drive the aggregate negative association of female breadwinning with commitment shown in Table III. Coupled with the evidence from the young Australian sample, this leads us to further conjecture that the relationship quality effects we observe in our younger samples may originate primarily in the mind of the woman. These findings support our prior hypothesis that female breadwinning in younger partnerships may serve as a signal to the woman that she could do better on the market for partners.

Finally, we conducted sensitivity checks (not tabulated here, but available upon request) by level of education, an approach motivated by prior findings that behavior within mixed-gender couples that may relate to gender norms can differ markedly by education level (e.g., Foster and Stratton 2017). As above with the BKP samples, we define less-educated couples in the US to be couples in which neither partner has more than a high school education. We define less-educated couples in Australia to be couples in which the woman has no more than a high school education and the man has no more than a vocational education. Those not classified as less-educated couples are classified as more-educated couples.

In the NLSY97, more-educated married couples report feeling their partner cares more when the partnership transitions into female breadwinning. Otherwise, results on marital quality measures for more-educated couples are not robustly statistically or economically significant. However, more-educated cohabiting partnerships that feature female breadwinning are statistically more likely to dissolve. For more-educated cohabiting couples in Australia, we find female breadwinning to be associated with men reporting more love for their partners in OLS but not FE models. Married women in more-educated partnerships featuring female breadwinning report slightly less satisfaction with their partners, in both OLS and FE models. No robust significant effects are seen on partnership dissolution for more-educated Australian couples.

In the NLSY97, we see less reported commitment and a marginally higher likelihood of dissolution for less-educated cohabiting couples in the presence of female breadwinning, but otherwise no significant results. By contrast, less-educated cohabiting men in Australia report less love for their partner, less satisfaction with the relationship, and that their needs are being less well met, when their partnership transitions into female breadwinning. Women in less-educated married couples in Australia report fewer relationship problems when in or transitioning into a state of female breadwinning. Married men in less-educated couples in Australia also report somewhat fewer relationship problems when transitioning into female breadwinning. There is no consistent evidence of a relation between female breadwinning and dissolution of either cohabiting or married partnerships in Australia for less-educated couples.

We conclude based on these results by education that female breadwinning is generally inconsequential, and sometimes positive, for more-educated couples in our more recent data, with the exception of a modestly higher dissolution risk for US cohabiters. Our

results further show that in the US, it is less-educated couples who drive the lower commitment reported in cohabitations featuring female breadwinning. We see these results as consistent with our prior hypothesis that the importance of a male breadwinning norm has declined over time, but with the caveat that this shift is happening more in the minds of more-educated people. This conjecture is further supported by the evidence in Australia that men in less-educated cohabiting partnerships are more likely to feel relationship stress in association with female breadwinning, though this may also be due – just as in the original BKP results – to transitions into female breadwinning being a consequence of other more serious problems, such as the man’s job loss and/or health shocks that he suffers, causing his partner to become the primary earner. More research is needed to fully understand this intriguing result.

6. Conclusion

We find that the effects of female breadwinning on partnership dissolution and relationship quality found in Bertrand, Kamenica and Pan (2015) are concentrated in partnerships in which women are more able to access higher-earning alternative partners. In more recent data, female breadwinning is less impactful overall, suggesting that the norm of the male breadwinner has become less relevant. The effects of female breadwinning are concentrated in cohabiting partnerships. Cohabitors may have more liberal attitudes that are accepting of female breadwinning as compared to married couples, but this effect seems to be dominated by the lower cost of switching partners. Furthermore, it is younger cohabiting women, as well as their partners to a lesser extent, who report more dissatisfaction with their relationship when they become the household breadwinners, perhaps because of the signal that they have better re-partnering opportunities. This conjectured dynamic is supported by the observation that as compared to men in married couples, men in cohabiting relationships report spending about twice as much time unemployed and the unemployment spell is about twice as long when she rather than he is the breadwinner, a state of the world that may act to weaken the health of the partnership.

Some differences by education level are also observed, perhaps because of the generally inverse relation between educational attainment and traditional gender norms. Men in more-educated partnerships have some tendency to report more satisfaction when their partner is the breadwinner, and women less so. Less-educated cohabiting couples in the US, by contrast, report being less committed to their relationship and are marginally more likely to break up in the presence of female breadwinning. Less-educated cohabiting men in

Australia also report less satisfaction, though there is no evidence this dissatisfaction leads to relationship dissolution. Partnership dissolution in Australia may be unaffected by female breadwinning because the men who become more disaffected when they lose breadwinning status, and the women who may be able to access more re-partnering options when they become breadwinners, may be compensated for this disutility through higher household income or via other channels that we do not observe.

Our results are subject to limitations necessitated by the constraints of the data sets available as well as the possibility of reporting errors. Specifically, as noted by Murray-Close and Heggeness (2018), it may be that men's errors when reporting their income are larger and more positive than women's. If this is true, then female share should be higher in at least some households than what we observe in our data. If those same households would have had lower satisfaction or higher dissolution, were female share to have been higher – i.e., if women's under-reporting of their income or men's over-reporting of theirs is protective of the marriage – then if effects are not homogeneous, our estimates may be attenuated. Specifically, if there is effect heterogeneity such that it is women in those households that would be more negatively affected by high female income share who most severely under-report their income compared to the man's, then our estimates may be biased toward zero.

Overall, we interpret our results as reflecting a decline over time in the importance of the male breadwinning norm, particularly for more-educated couples, together with the continued relevance of partner-market dynamics in a world in which the average man earns more than his partner. With cohabitations becoming increasingly common, the market dynamics to which cohabiters are particularly sensitive will be relevant to a larger and larger fraction of adults. Future work might track partnerships that form after a female-breadwinning partnership dissolves in order to further examine these dynamics.

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Appendix Table A
NLSY97 Sample Statistics

	Married Couples		Cohabiting Couples	
	Mean	Std. Dev.	Mean	Std. Dev.
<u>Wage & Salary & Self-Employment Income</u>				
Woman earns more	0.254	0.435	0.334	0.472
His real earned income (000's 2016\$)	45.368	35.029	31.044	29.485
Her real earned income (000's 2016\$)	23.401	23.546	19.615	21.039
Couple's real earned income (000's 2016\$)	68.768	44.766	50.658	40.897
He has no earned income	0.040	0.197	0.093	0.290
She has no earned income	0.228	0.420	0.213	0.410
Her share of couple's earned income	0.330	0.265	0.386	0.300
Respondent is a woman	0.559	0.497	0.521	0.500
<u>His Characteristics</u>				
Age	28.217	4.238	26.899	4.781
Hispanic	0.222	0.416	0.241	0.428
Black	0.127	0.333	0.209	0.406
Other Race	0.103	0.304	0.128	0.334
Race is Missing	0.066	0.249	0.078	0.268
Enrolled full-time ^a	0.017	0.131	0.013	0.113
His education (base case: less than high school)				
High School	0.592	0.491	0.567	0.496
Some College	0.046	0.209	0.052	0.222
AA Degree	0.119	0.324	0.066	0.248
BA Degree	0.083	0.276	0.035	0.183
Grad Degree	0.012	0.111	0.006	0.074
He is disabled ^a	0.005	0.071	0.006	0.079
<u>Her Characteristics</u>				
Age	26.658	3.701	25.174	4.116
Hispanic	0.234	0.423	0.244	0.430
Black	0.111	0.314	0.177	0.381
Other Race	0.107	0.309	0.134	0.341
Race is Missing	0.057	0.232	0.078	0.268
Enrolled full-time ^a	0.027	0.161	0.026	0.158
Her education (base case: less than high school)				
High School	0.558	0.497	0.568	0.495
Some College	0.058	0.233	0.068	0.251
AA Degree	0.145	0.352	0.086	0.281
BA Degree	0.086	0.281	0.035	0.185
Grad Degree	0.017	0.130	0.006	0.078
She is disabled ^a	0.010	0.097	0.013	0.113

Household Characteristics

Number of children age 0-2	0.376	0.532	0.299	0.509
Number of children age 3-5	0.423	0.599	0.337	0.556
Number of children age 6-9	0.334	0.599	0.291	0.569
Number of children age 10-14	0.133	0.409	0.123	0.394
Number of children age 15-17	0.014	0.121	0.011	0.111
Number of other dependents	0.155	0.538	0.197	0.579
Number of other adults	0.234	0.709	0.365	0.853
Resides in (base case: an urban area)				
a city	0.326	0.469	0.400	0.490
a rural area	0.237	0.425	0.177	0.382
Ever cohabited in relationship	0.465	0.499	1.000	0.000
Months married to date (with this partner)	48.801	35.247		
Months cohabiting to date (with this partner)	12.645	19.236	37.920	29.716
Number of Observations	13,962		7433	

Dummy variables to control for wave and region are also included in the analysis.

^a Disability and enrolment status can only be determined for the respondent, not the partner.

Data from the 1997-2013 waves of the NLSY97, supplemented with relationship data from 2015.

Appendix Table B
Hilda Sample Statistics

	Married Couples		Cohabiting Couples	
	Mean	Std. Dev.	Mean	Std. Dev.
<u>Wage & Salary & Self-Employment Income</u>				
Woman earns more	0.239	0.427	0.270	0.444
His real earned income (000's 2016 AU\$)	85.400	72.878	66.751	52.660
Her real earned income (000's 2016 AU\$)	39.798	42.488	40.127	35.232
Couple's real earned income (000's 2016 AU\$)	125.199	88.032	106.878	69.868
He has no earned income	0.041	0.198	0.037	0.189
She has no earned income	0.189	0.391	0.160	0.367
Her share of couple's earned income	0.368	0.193	0.406	0.181
<u>His Characteristics</u>				
Age	44.468	10.065	35.847	11.123
Immigrant from northern Europe or an English speaking country	0.115	0.320	0.113	0.316
Immigrant from another country	0.130	0.336	0.043	0.203
Of aboriginal descent	0.010	0.098	0.034	0.181
Enrolled full-time	0.011	0.103	0.033	0.177
His education (base case: 12 years)				
Post-Bach	0.072	0.259	0.037	0.190
BA/Honors	0.068	0.252	0.043	0.202
Diploma	0.173	0.378	0.123	0.328
Cert III/IV _a	0.106	0.308	0.075	0.263
11 Years	0.101	0.302	0.154	0.361
10 Years	0.042	0.201	0.065	0.246
<= 9 Years	0.127	0.332	0.169	0.375
He is disabled	0.100	0.300	0.090	0.286
<u>Her Characteristics</u>				
Age	42.187	9.729	33.644	10.659
Immigrant from northern Europe or an English speaking country	0.095	0.293	0.098	0.297
Immigrant from another country	0.141	0.348	0.054	0.226
Of aboriginal descent	0.011	0.105	0.038	0.192
Enrolled full-time	0.018	0.133	0.045	0.208
Her education (base case: 12 years)				
Post-Bach	0.050	0.218	0.048	0.214
BA/Honors	0.091	0.287	0.051	0.220
Diploma	0.202	0.402	0.190	0.393
Cert III/IV	0.109	0.312	0.088	0.284
11 Years	0.144	0.351	0.176	0.381
10 Years	0.067	0.251	0.066	0.248

<= 9 Years	0.185	0.388	0.165	0.371
She is disabled	0.108	0.311	0.104	0.305
Household Characteristics				
Number of children age 0-4	0.381	0.685	0.287	0.594
Number of children age 5-9	0.338	0.641	0.183	0.494
Number of children age 10-14	0.331	0.639	0.156	0.464
Number of other dependents	0.264	0.574	0.076	0.308
Number of other adults	0.238	0.589	0.194	0.596
A child is disabled.	0.053	0.224	0.040	0.196
Another HH member is disabled.	0.047	0.212	0.034	0.182
Resides in (base case: an urban area)				
a city	0.675	0.468	0.650	0.477
a rural area	0.126	0.332	0.106	0.307
Ever cohabited in relationship	0.578	0.494	1.000	0.000
Years married to date (with this partner)	15.249	11.000		
Years cohabiting to date (with this partner)	1.658	2.491	4.968	5.568
Number of Observations	33,053		10,812	

a The Australian education codes used here are defined further at: <https://www.aqf.edu.au/aqf-levels>. Dummy variables to control for wave and state are also included in the analysis. Data from the 2000-2016 waves of HILDA.

Appendix Table C: Relationship Quality in Australia for Persons Born after 1977

				Cohabiting							
		OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE
		Partner	Partner	Love	Love	No- Problem	No- Problem	Needs	Needs	Expect	Expect
His Response											
Wife Earns More		-0.0571 (0.0796)	0.0044 (0.0830)	0.0115 (0.0376)	-0.0805 (0.0882)	0.0142 (0.0725)	-0.2763** (0.1345)	0.0259 (0.0598)	-0.2728** (0.1204)	0.0576 (0.0621)	-0.1637 (0.1307)
Number of:											
Observations		4,885	4,030	1,575	524	1,578	532	1,577	530	1,573	528
Fixed Effects			1,180		226		230		229		228
Her Response											
Wife Earns More		-0.1825** (0.0881)	-0.1973** (0.0906)	0.0295 (0.0338)	-0.0055 (0.0573)	-0.0975 (0.0803)	-0.3736** (0.1567)	-0.0233 (0.0550)	-0.0821 (0.0891)	-0.1020* (0.0608)	-0.0982 (0.1244)
Number of:											
Observations		5,079	4,210	1,679	580	1,677	580	1,678	580	1,673	576
Fixed Effects			1,214		251		251		251		249
				Married							
		OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE
		Partner	Partner	Love	Love	No- Problem	No- Problem	Needs	Needs	Expect	Expect
His Response											
Wife Earns More		-0.2057** (0.0884)	-0.0396 (0.0732)	0.0137 (0.0370)	-0.0118 (0.0543)	-0.0243 (0.0840)	0.0444 (0.1325)	-0.0032 (0.0692)	0.0583 (0.0887)	-0.0321 (0.0701)	0.1417 (0.0948)
Number of:											
Observations		5,479	5,221	1,890	1,315	1,890	1,317	1,892	1,318	1,886	1,313
Fixed Effects			988		513		514		514		512
Her Response											
Wife Earns More		-0.1731* (0.0916)	-0.0019 (0.0736)	-0.0761* (0.0436)	-0.0784 (0.0644)	0.0288 (0.0839)	-0.0042 (0.1219)	-0.0221 (0.0718)	-0.0200 (0.0912)	-0.0784 (0.0736)	-0.0945 (0.0953)

Number of:										
Observations	5,617	5,361	1,927	1,333	1,930	1,339	1,928	1,339	1,924	1,331
Fixed Effects		1,015		520		523		523		519

All specifications include the log of her earnings, the log of his earnings, the log of household earnings, dummy variables identifying households in which she earns all or none of the household earnings, and quadratics in each partner's age. FE specifications exclude singleton observations.

Controls for state (7), year (13) and each partner's education (7), aboriginal and immigration status (3) are also included.

Robust standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1

Appendix Table D: Relationship Quality in US by Gender of Respondent

		Cohabiting							
		OLS	FE	OLS	FE	OLS	FE	OLS	FE
His Response		Close	Close	Partcare	Partcare	NoConflict	NoConflict	Commit	Commit
Wife Earns More		0.0248 (0.1089)	0.1123 (0.1324)	-0.0039 (0.0945)	0.0009 (0.1076)	-0.0343 (0.2123)	0.3137 (0.2765)	-0.0474 (0.1666)	0.2846 (0.2735)
Number of:									
Observations		1,814	1,402	1,813	1,402	1,814	1,404	1,123	904
Fixed Effects			562		562		562		466
Her Response									
Wife Earns More		-0.1377 (0.0962)	-0.0201 (0.1239)	-0.0843 (0.0820)	-0.1024 (0.1092)	-0.0770 (0.1889)	-0.0124 (0.2602)	-0.3260*** (0.1171)	-0.4177* (0.2359)
Number of:									
Observations		2,087	1,643	2,091	1,646	2,092	1,647	1,234	1,053
Fixed Effects			674		674		673		534
		Married							
		OLS	FE	OLS	FE	OLS	FE	OLS	FE
His Response		Close	Close	Partcare	Partcare	NoConflict	NoConflict	Commit	Commit
Wife Earns More		-0.0262 (0.0871)	0.0258 (0.0968)	0.0684 (0.0704)	0.1178 (0.0737)	0.0247 (0.2223)	-0.2653 (0.2721)	0.0589 (0.0742)	-0.0362 (0.0778)
Number of:									
Observations		2,464	2,376	2,464	2,376	2,464	2,376	1,895	1,846
Fixed Effects			794		794		794		764
Her Response									
Wife Earns More		0.0363 (0.0921)	0.0043 (0.0807)	-0.0005 (0.0745)	-0.1140 (0.0708)	-0.1284 (0.1687)	-0.1628 (0.1808)	-0.0010 (0.0813)	-0.1560 (0.0991)
Number of:									
Observations		3,508	3,376	3,508	3,376	3,506	3,374	2,545	2,474
Fixed Effects			1,066		1,066		1,065		997

All specifications include the log of her earnings, the log of his earnings, the log of household earnings, dummy variables identifying households in which she earns all or none of the household earnings, and quadratics in each partner's age. FE specifications exclude singletons. All the US specifications include controls for region (4), year (13), and each partner's education (5), ethnicity, and race (3).

Robust standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1