Relative Income within Households, Relationship Stress, and Health Outcomes

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Recent evidence that gender norms are important even in advanced economies

Binder and Lam (JHR 2020) begin their study by discussing existing evidence that in mixed-gender marriages, married women are on average:

- Shorter ('male taller' norm), younger, and have lower earnings than their spouses ('male breadwinner' norm)

Other recent evidence:

- Gender norms influence child penalties across US states (Kleven 2022)
- Gender norms prevent family income maximization (Giomonni & Rubolino 2022)

Influential study on 'male breadwinner' norm:

- Bertrand, Kamenica & Pan (QJE 2015)
- Over 1100 citations as of early this week

Bertrand, Kamenica & Pan (QJE 2015)

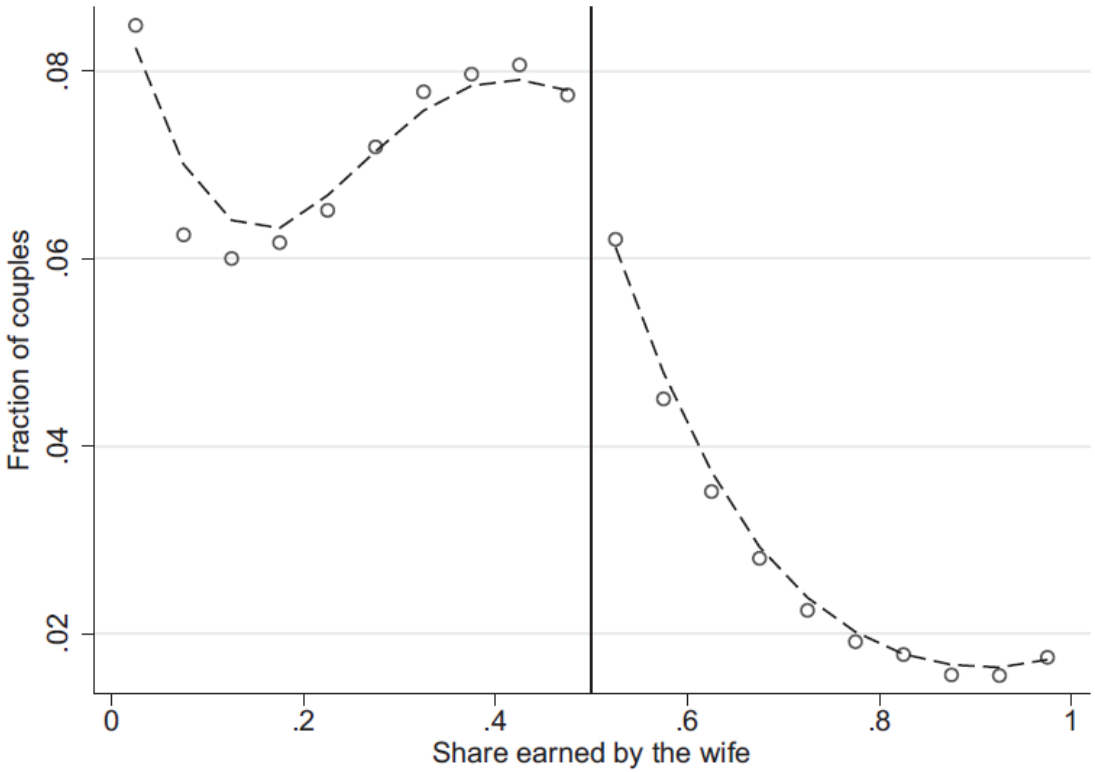


FIGURE I

Distribution of Relative Income (SIPP Administrative Data)

Distribution of relative income across married couples in U.S. exhibits a sharp drop at the point women earn more

Conclude this is due to the social norm 'a man should earn more than his wife'

- Couples avoid getting married & more likely to separate
- Higher earning women reduce labor supply

BKP also showed that 'wife earns more' reduces marital satisfaction

$$Y_i = \beta_0 + \beta_1 \times wifeEarnsMore_i + \beta_2 \times lnWifeIncome_i + \beta_3 \times lnHusbIncome_i + \beta_4 \times lnTotIncome_i + \beta_5 \times X_i + \varepsilon_i,$$

Relative Income and Marital Satisfaction

	(1)	(2)	(3)	(4)
Panel A: dependent variable: *happyMarriage*				
wifeEarnsMore	–0.068**	–0.060*	–0.070*	–0.065*
	[0.031]	[0.032]	[0.036]	[0.037]
Observations	7,659	7,659	7,659	7,659
R-squared	0.025	0.026	0.025	0.025
Panel B: dependent variable: *marriageTrouble*				
wifeEarnsMore	0.082***	0.078***	0.079**	0.086**
	[0.027]	[0.029]	[0.033]	[0.034]
Observations	7,520	7,520	7,520	7,520
R-squared	0.047	0.048	0.047	0.048
Panel C: dependent variable: *discussSeparation*				
wifeEarnsMore	0.068***	0.064***	0.060**	0.065**
	[0.024]	[0.024]	[0.028]	[0.028]
Observations	7,507	7,507	7,507	7,507
R-squared	0.034	0.034	0.034	0.034
Additional controls:				
Cubic in *lnWifeIncome* and *lnHusbIncome*	no	yes	no	no
relativeIncome	no	no	yes	yes
|*Wife-Husb Income Rank*|	no	no	no	yes

If a woman earns more than her husband, men & women report:

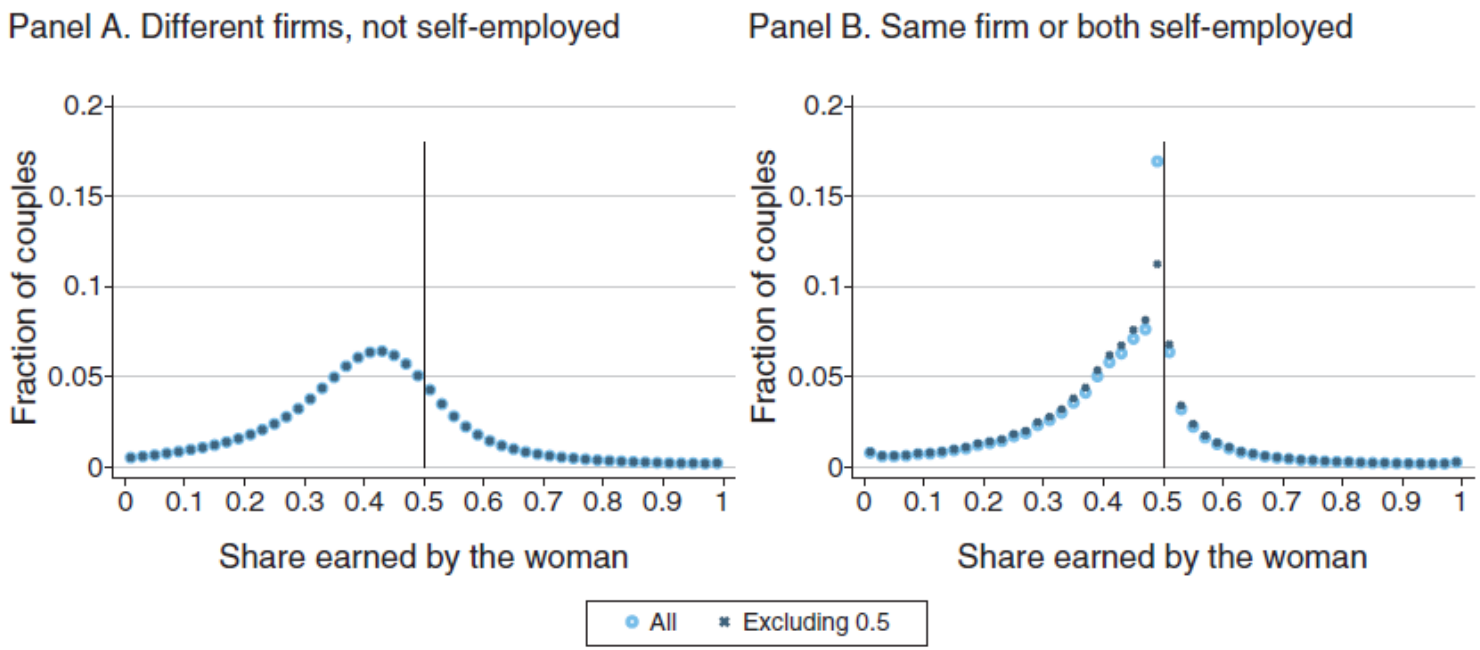
- Marriage is less happy
- Marriage might be in trouble
- They've discussed separating

Also, 'wife earns more' is associated with more nonmarket work and higher divorce rates

Recent studies cast doubt on the generalisability of the BKP results

Zinovyeva and Tverdostup (AEJ:Applied 2021) conclude from Finnish data that the:

- Discontinuity in relative earnings distribution only arises when spouses are self-employed or work together → leads to equalisation of earnings (mass at 0.5)



Recent studies cast doubt on the generalisability of the BKP results

Binder and Lam (JHR 2020) analyse U.S. data and come to a similar conclusion:

- Discontinuity in relative earnings distribution caused by a mass of equal-earning couples, and omitting such couples eliminates the discontinuity

Recommend the following:

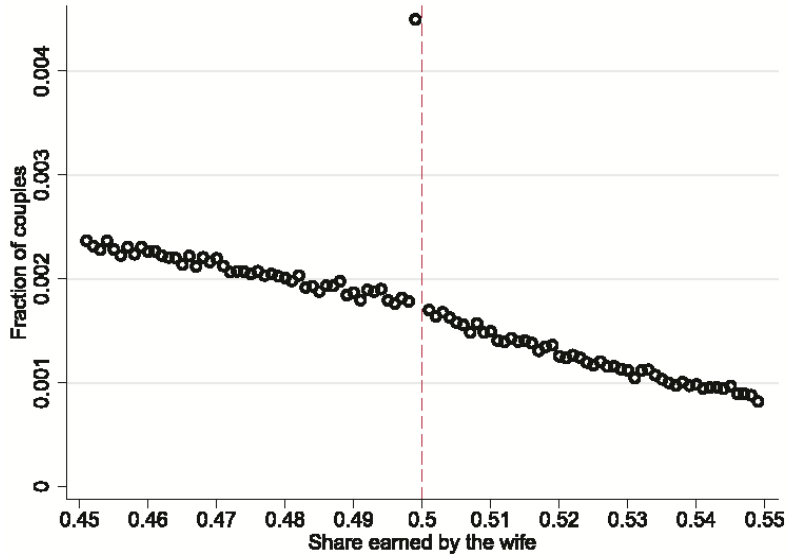
- Define main variable to be wife earning '… greater than' her husband
- Exclude observations where man and woman have same incomes
- Control for working in same occupation / same source of income

"If these alternative specifications still show that when a wife out-earns her husband she …. becomes likelier to trigger a divorce, then we would feel more confident assigning a male breadwinner norm explanation to the data"

Recent studies cast doubt on the generalisability of the BKP results

Hederos and Stenberg (SJE 2022) use Swedish population data to show that:

- There is a spike in the relative income distribution where partners earn exactly the same



Excluding partners who earn the same leads to a discontinuity that is small and insignificant

Our contribution: we re-analyse the discontinuity taking these new concerns into account and extend to new outcomes

We analyse matched administrative datasets from Australia to:

(1) Re-analyse the discontinuity taking critiques into account

a) Is there still a missing mass of households where 'wife out-earns husband'?

b) When wife out-earns husband, are there more separations and how does it influence labor supply by spouses?

(2) Extend literature by estimating associations between 'wife out-earns husband' and health outcomes in years after when income is measured

a) Health service use (number of visits to different provider types)

b) Prescription medication use (by disaggregated drug categories)

c) Preliminary modelling of dynamic patterns in income differences

(3) Test for heterogeneity with demographic & economic factors (stay tuned!)

Preview of results

(1) Re-analysis of the discontinuity

a) There is still a missing mass of households where 'wife out-earns husband'

b) When wife out-earns husband, separations ↑ by 0.3pp, wife's paid work hours ↓, husband's paid work hours ↑, and husband's unpaid work hours ↓ (gap in paid works hours ↑ by 1.03 hours mostly due to wife's lower paid hours)

(2) Associations between 'wife out-earns husband' and subsequent health outcomes

c) Number of visits by wife to GP ↓ by 0.14 visits, visits by husband to GP ↑ by 0.12 visits

d) Husbands ↑ antidepressant use by 0.4pp and ↑ sedative use by 0.18pp

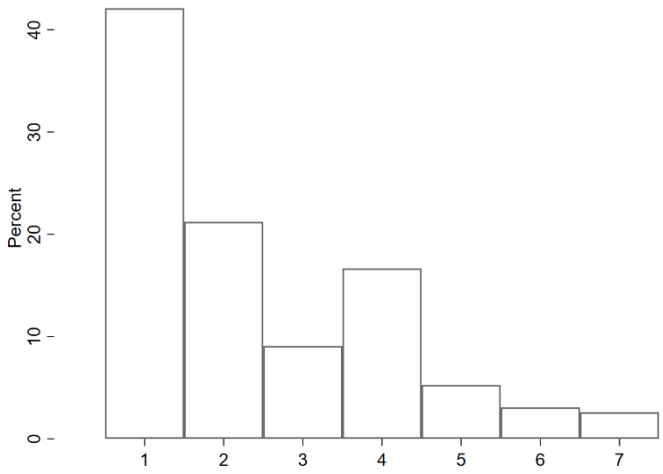
e) Preliminary results of dynamic patterns suggest that wife's 'new out-earning income effects' matter significantly

A significant minority of Australians have a ‘male breadwinner’ attitude

HILDA survey respondents evaluated the following statements from ‘strongly disagree’ to ‘strongly agree’

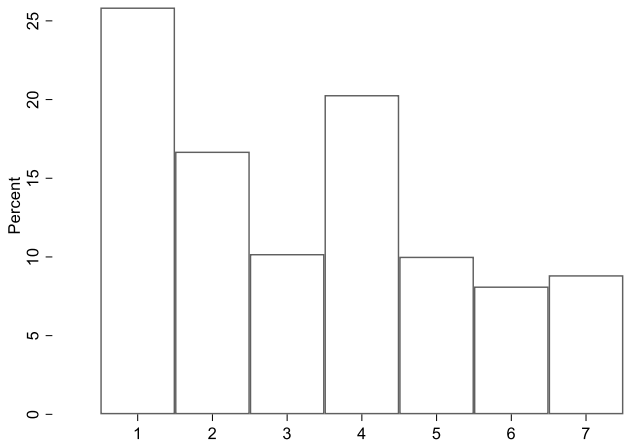
It is not good for a relationship if the woman earns more than the man

- 42% strongly disagree (38% M, 45% F)
- 28% neutral or agree (29% M, 27% F)



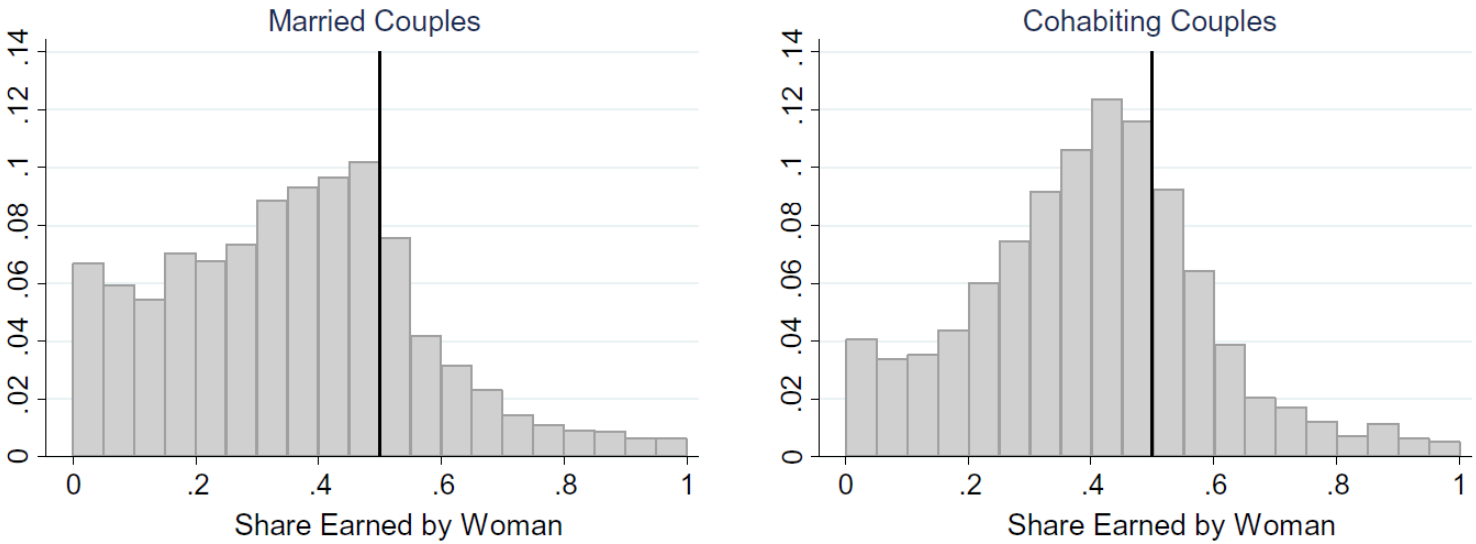
It is better for everyone involved if the man earns the money and the woman takes care of the home and children

- 26% strongly disagree (19% M, 31% F)
- 47% are neutral or agree (53% M, 42% F)



Other Australian research suggests modest male breadwinner effects

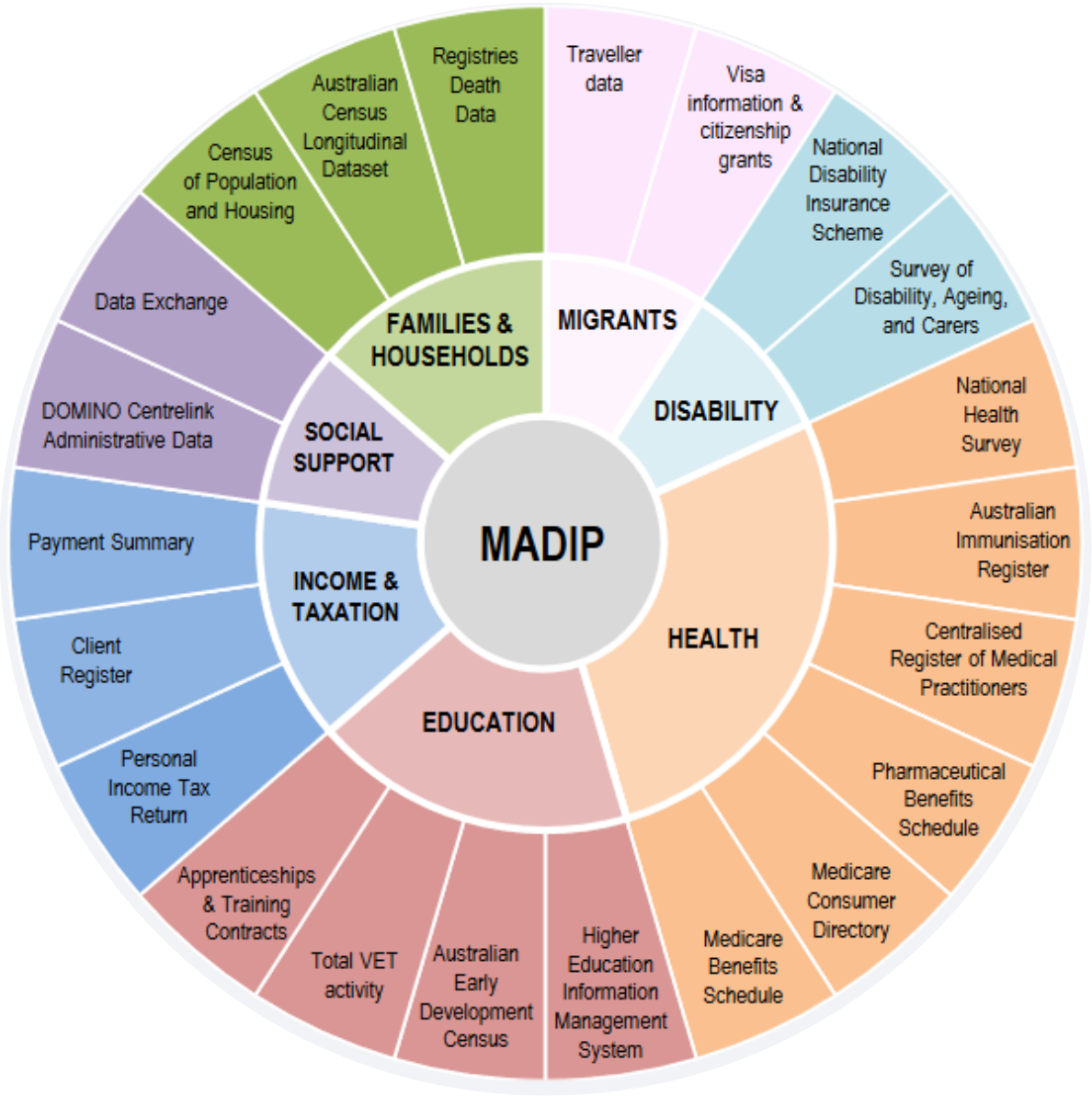
Foster and Stratton (JPopE 2021) analyse HILDA survey data and find a small decline at 0.5:



Small sample sizes (~4500 married couples) and self-reported income limits inference; authors conclude: "We find a much more modest association… than has been found in prior studies"

Other weakness: "…(given timing of income and outcome measurements)…we note that reverse causality - may afflict our Australian results."

Data from the Multi-Agency Data Integration Project



Data on (close to) whole Australia population from 2011 – 2018

2011 Census provides base data set to which various federal government datasets are matched

Data from the Multi-Agency Data Integration Project

Our main sources of data are:

- Demographic and labour market info from 2011 Census survey
- Income data from individual tax return records
- Location data combined from multiple sources (e.g. tax returns, Medicare)
- Health data from Pharmaceutical Benefits Scheme & Medicare Benefits Schedule

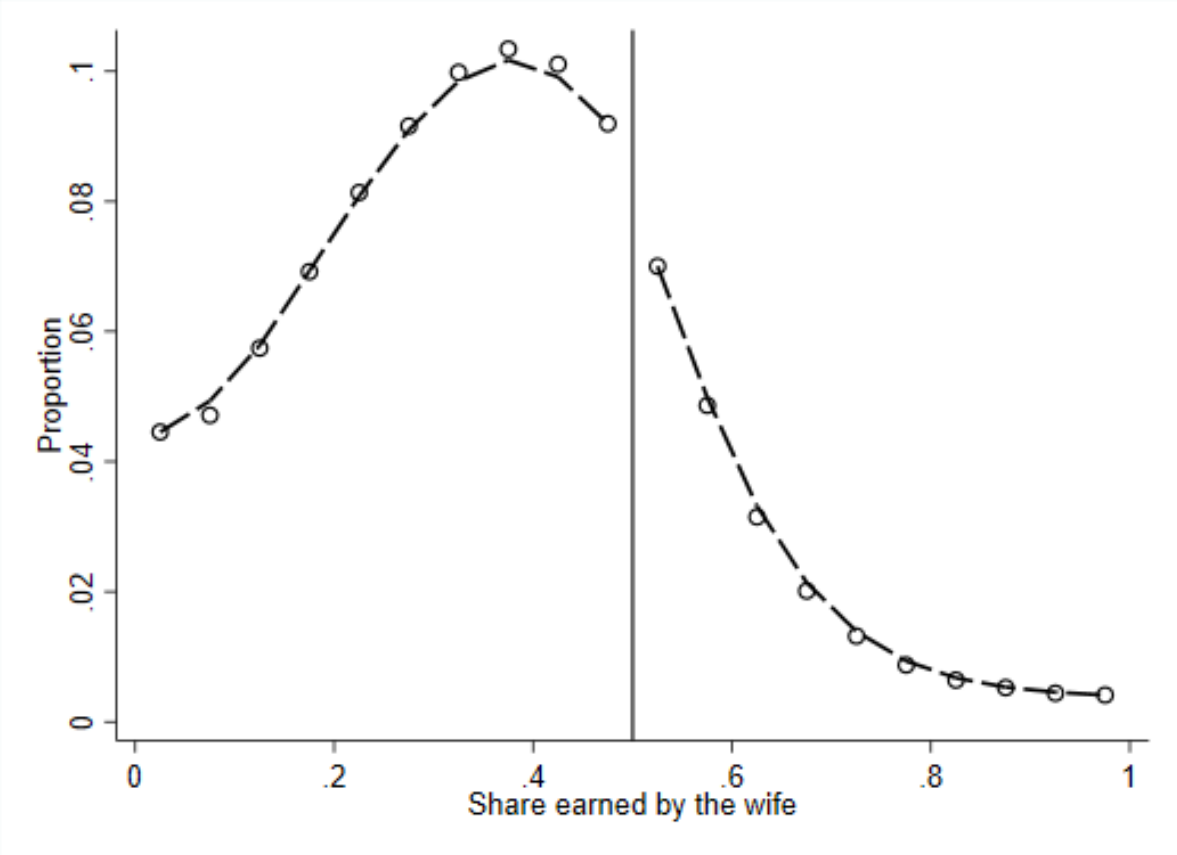
Sample of couples varies with analysis/outcome, but always: married, both employed (both have wage income), and working age (18-65 for most analyses)

Regression estimation samples exclude:

- Couples who own a business or report business income
- Couples in the same 1-digit industry*occupation cell
- Couples with same incomes

Discontinuity in the Relative Income Distribution

Distribution of relative income



- 977,205 married and employed couples aged 18-65 in year 2011
- Spouses have different jobs (different occupation*industry) and not self-employed
- Annual gross wage income measured from 2010-2011 individual tax return

Discontinuity estimates

The Cattaneo et al. (JASA, 2020) CJM estimator yields a discontinuity estimate of:

- 7.8% when omit spouses with a business or in same occupation-industry cell
- 5.0% when also omit spouses with same incomes

		McCrary estimator 5% bins	CJM estimator	
	N	log density	density	log density
All couples	1,336,494	-0.329	-1.456	-0.567
		(54.69)	(46.89)	
Excluding business owners / same occupation & industry	977,205	-0.272	-0.135	-0.078
		(28.99)	(4.08)	
Excluding couples earning within $100 of each other	974,057	-0.258	-0.085	-0.050
		(27.98)	(2.35)	

Notes: T-ratios in parenthesis. Each observation is a couple.

Separations, paid work hours & unpaid work hours

Methodology

- Separations defined as a shift from co-residing (in income year) to not co-residing within the 3-years post the income year
  - Dataset contains time-varying location information but not time-varying marital status (measured only in the Census)

- Paid and unpaid work hours measured once in dataset, from 2011 Census
  - Continuous paid work hours variables
  - Binary unpaid work hours variables

44 ***Last week*, how many hours did the person work in all jobs?**

- Add any overtime or extra time worked and subtract any time off.
- Remember to mark box like this: ▬

☐☐ Hours worked

☐ None

48 **In the *last week* did the person spend time doing unpaid domestic work for their household?**

- Include all housework, food/drink preparation and cleanup, laundry, gardening, home maintenance and repairs, and household shopping and finance management.

ⓘ Visit **www.abs.gov.au/censushelp** for more information.

☐ No, did not do any unpaid domestic work in the last week

☐ Yes, less than 5 hours

☐ Yes, 5 to 14 hours

☐ Yes, 15 to 29 hours

☐ Yes, 30 hours or more

Methodology

- Main regressor is annual gross wife's earnings > annual husband gross earnings as reported on individual tax return

- Include covariates for age, education, country of birth, English proficiency, numbers of adults/children, 2-digit occupation/industry codes, area of residence

  Also, log total income, log wife's income, log husband's income, relative earnings, relative earnings squared

  Estimates are stable across specifications with more or fewer covariates

Estimated associations

Coefficients on variable indicating a wife earned more than her husband in year t

	N	Mean	Coef	
Separated (t+1 -> t+3)	768,994	0.023	**0.003**	(0.001)
Wife paid work hours (t+1)	755,077	29.696	**-0.713**	(0.055)
Husband paid work hours (t+1)	802,519	42.018	**0.329**	(0.055)
Husband - wife work hours (t+1)	722,355	12.320	**1.033**	(0.071)
Wife unpaid work hours 15+ (t+1)	838514	0.455	0.002	(0.002)
Husband unpaid work hours 15+ (t+1)	837154	0.125	**-0.014**	(0.002)
Husband unpaid work hours > wife unpaid hours (t+1)	833623	0.053	**-0.013**	(0.001)

Direction of results in-line with those from other studies

- Increase in separation (residing apart) by 0.3pp (13.0%)
- Increase in paid work hours gap by 1.03 hours (driven by lower wife hours) (8.4%)
- Decrease in proportion of husband with unpaid work hours 15+ by 1.4pp (11.2%)

Use of healthcare services and prescription medication

Methodology

- All health outcomes measured using data from 3-years post income year
- Service use measured by total number of visits in 3 categories
  - General practitioner (GP)
  - Allied health (e.g. psychology, physiotherapy, podiatry)
  - Specialist (e.g. psychiatry, dermatology, ophthalmology); not including obstetricians and anaesthetists
- Medication use measured by any use (0/1), representing the body system on which they act
- For medication use regressions, people who used the medication during income year are omitted: outcome measures new uptake
- Same regression specification as above

Healthcare services

Number of visits within three years post measurement of income (t+1 -> t+3)

	N	Mean	Coef	S.E.
Women				
General practitioner	767,831	15.92	**-0.139**	(0.053)
Allied health	767,831	1.184	0.024	(0.015)
Specialist	767,831	3.624	0.056	(0.028)
Obstetrician	370,237	0.209	**-0.006**	(0.003)
Men				
General practitioner	767,871	11.61	**0.119**	(0.050)
Allied health	767,871	0.734	0.004	(0.013)
Specialist	767,871	2.636	-0.038	(0.027)

Small changes in healthcare service use

- Decrease in wife GP use by 0.139 visits (0.9%)
- Decrease in wife obstetrician use by 0.006 visits (2.9%)
- Increase in husband GP use by 0.119 visits (1.7%)

Prescription medications

Any use (0/1) within three years post measurement of income (t+1 -> t+3)

	Women		Men	
	Mean	Coef	Mean	Coef
Alimentary tract and metabolism	0.270	-0.003	0.182	0.003
Blood and blood forming organs	0.082	-0.000	0.047	0.001
Cardiovascular system	0.103	-0.000	0.116	-0.002
Dermatologicals	0.164	0.001	0.120	0.002
Genito urinary system and sex hormones	0.220	**-0.005**	0.010	0.001
Systemic hormonal preparations	0.158	-0.001	0.108	0.001
Anti-infectives for systemic use	0.665	-0.004	0.577	-0.004
Antineoplastic and immunomodulating agents	0.016	0.000	0.009	0.001
Musculo-skeletal system	0.223	-0.002	0.230	0.002
Nervous system	0.354	-0.004	0.327	**0.006**
Antiparasitic products, insecticides	0.003	0.000	0.002	0.000
Respiratory system	0.121	-0.002	0.087	0.000
Sensory organs	0.140	-0.001	0.131	-0.003

- Husband increases 'nervous system' (mental health) drugs by 0.58pp (1.8%)
- Wife decreases 'genito urinary system and sex hormones' drugs by 4.6pp (2.1%)

  Most common type in this group is contraceptives

Mental health (nervous system) prescription medications

Any use (0/1) within three years post measurement of income (t+1 -> t+3)

	N	Mean	Coef	
Women				
Antidepressant	667266	0.105	-0.001	(0.002)
Anxiolytic	743594	0.065	0.002	(0.001)
Sedative	746566	0.052	-0.001	(0.001)
Men				
Antidepressant	708379	0.073	**0.004**	(0.001)
Anxiolytic	751175	0.045	0.002	(0.001)
Sedative	754014	0.037	**0.002**	(0.001)

Significant increase in husbands' (new) use of mental health medication

- Increase in husband antidepressant use by 0.4pp (5.5%)
- Increase in husband sedative use by 0.2pp (4.9%)

Preliminary analyses of dynamics

- Use three income years (pre-health measurement) to disaggregate the time t 'wife out-earns husband' indicator in to 4 categories

  1. Wife earns more (Y) for first time: $Y_{t-2} = 0$, $Y_{t-1} = 0$, $Y_t = 1$
  2. Wife earns more now (t) and before (<t): (1,1,1), (0,1,1) (1,0,1)
  3. Husband earns more now (t) but not always (<t): (1,1,0), (0,1,0) (1,0,0)
  4. Husband always earns more: (0,0,0)

  Estimate regressions with (4) as the base category

- Further disaggregate (1) in to reasons for change

  1. Wife now earns more because (bigger) increase in wife income
  2. Wife now earns more because (bigger) decrease in husband income

Preliminary analyses of dynamics

	Coef		Coef	
Separation				
Wife earns more for first time (recently)	**0.008**	(0.001)		
- Positive wife income effect			**0.006**	**(0.002)**
- Negative husband income effect			**0.010**	**(0.002)**
Husband antidepressant use				
Wife earns more for first time (recently)	**0.006**	(0.002)		
- Positive wife income shock			**0.007**	**(0.003)**
- Negative husband income shock			0.003	(0.003)

Notes: Table presents selected coefficients

Wife earns more for the first time matters significantly

- Increase in separation by 0.8pp (both +wife and -husband income effects matter)
- Increase in husband's antidepressant use by 0.6pp (+wife income effect)

Conclusions

- Evidence that the social norm ‘a man should earn more than his wife’ is important in Australia

- As per other studies: If wife out-earns husband, more future separations, lower paid work on wife’s part

- New health results:
  - More new mental healthcare use by men (stressful relationship?)
  - Less pregnancy-related healthcare use by women (less obstetrics)
  - Preliminary dynamics analyses suggest wife’s ‘new out-earning income effects’ matter

- Still to do: heterogeneity analysis

Thank you

Please contact if you have questions or comments

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