

Manning up and womaning down: How husbands and wives report their earnings when she earns more

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Disclaimer

This presentation was prepared for the 2019 NBER Public Economics Meeting in Cambridge, MA. All results have been reviewed to ensure that no confidential information is disclosed. The Disclosure Review Board release number is DRB-B0035-CED-20190322.

It was developed to promote research and advancements in our understanding of the use of administrative records in household and person-level statistics. In that spirit and to encourage discussion and thoughtful feedback at early stages of our work, this presentation has undergone a more limited review than official Census Bureau reports. All views and any errors are solely those of the authors and do not reflect any official position of the Census Bureau.

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Motivation

- Economic indicators depend on the accuracy of self-reported survey data
- Economists *generally* assume survey data as truth...what if it's not and in nonrandom ways?
- We test this examining what happens to responses when gender social norms are violated.



Research question

Do survey respondents (mis)report earning to minimize violations of the norm that husbands outearn their wives?

Why do we think they might?

- An aversion to higher-earning wives appears to affect real-world marriage market outcomes (Bertrand, Kamenica, and Pan, 2015).
- So maybe it affects earnings reporting in surveys.
- But a review article concluded that “there is little evidence to support the existence of social desirability bias with respect to the reporting of annual earnings” (Bound, Brown and Mathiowetz, 2000, p. 53).

Data: Matched survey and income-tax records

**Current Population Survey Annual
Social and Economic Supplement
(CPS-ASEC)**

Sample of married couples
Survey-reported earnings and
demographic characteristics
Years 2003-13



**Social Security Detailed Earnings
Record (DER)**

Their income-tax records
“True” earnings as reported on W-2
forms
Years 2002-12

Sample

- Different-sex married couples from pooled CPS-ASEC data
- Both spouses age 25 to 54
- Both spouses work for pay
- Spouses who work for pay are employees (not self-employed)
- Exclude observations with missing, imputed, or inconsistent earnings data (and adjust CPS-ASEC sampling weights)

	Analysis Sample	Dual-Earner Sample	Trimmed Dual-Earner Sample
Couple-years	126,000	96,000	88,500
Unique Couples	96,500	74,000	68,000
Proportion Non-Traditional	0.230	0.258	0.274

We compare traditional and non-traditional couples

Traditional couples

Husband's earnings $\geq$ Wife's earnings

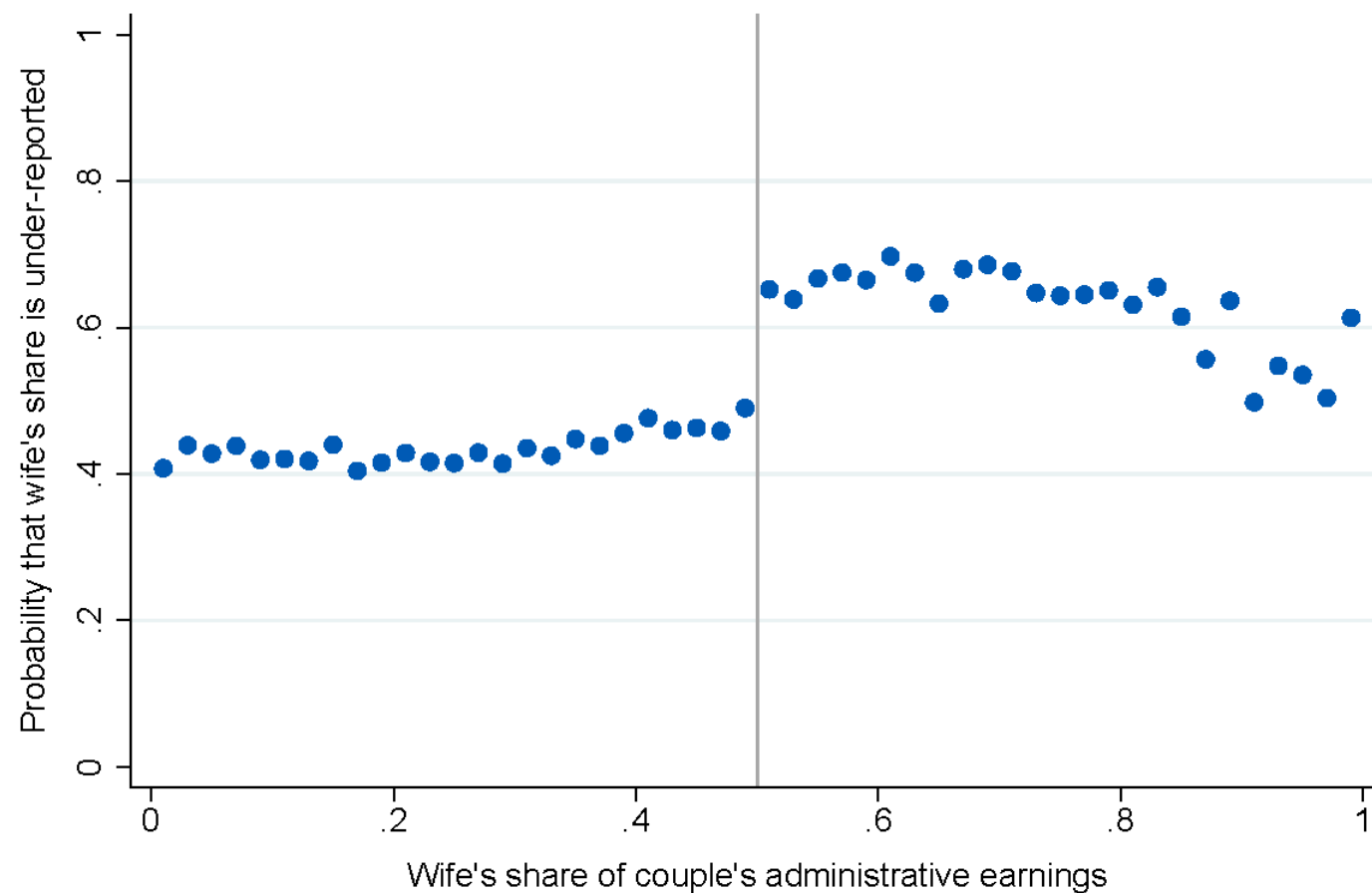
Approximately 97,000 observations

Non-traditional couples

Wife's earnings $>$ Husband's earnings

Approximately 29,000 observations

Underreporting by wife's share of total earnings



Choosing a specification: Lee and Lemieux (2010)

	(1)	(2)	(3)	(4)
NonTrad	0.161	0.162	0.164	0.158
	(0.015)	(0.015)	(0.016)	(0.018)
N	88,500	88,500	88,500	88,500
p-value	0.000	0.019	0.006	0.468

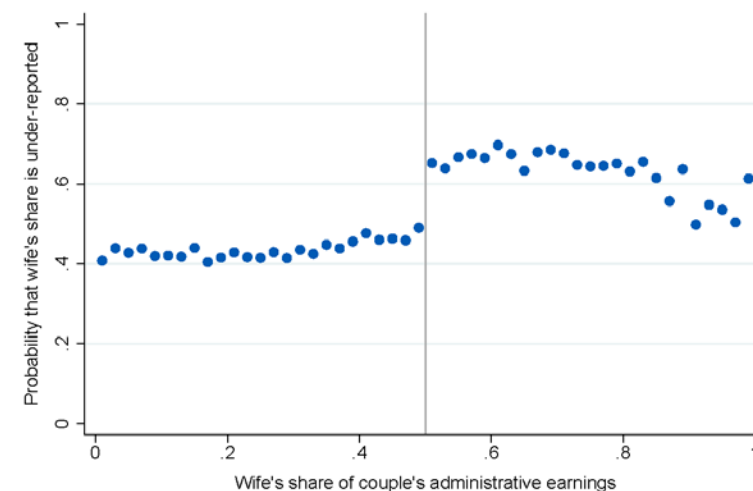
- $Y_i = 1$ if wife's share less in CPS than DER
- Sample: Couples where each spouse earns $\geq 10\%$ of combined earnings
- Regressors: Dummies for 0.02-width bins of WifeShare
- p-values from test of H_0 : bin indicator coefficients jointly = 0

(1): Linear; no interaction NonTrad & Wife Share polynomial

(2): Linear; interaction NonTrad & WifeShare polynomial

(3): Quadratic model; no interaction NT & WS polynomial

(4): Quadratic model; interaction NT & WS polynomial



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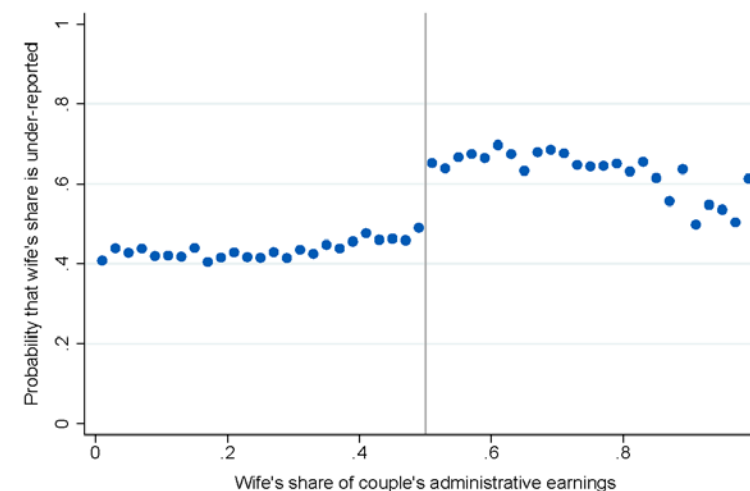
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- p-values from test of H_0 : bin indicator coefficients jointly = 0
- **Conclusion: Quadratic with interaction is sufficient.**

(1): Linear; no interaction NonTrad & Wife Share polynomial

(2): Linear; interaction NonTrad & WifeShare polynomial

(3): Quadratic model; no interaction NT & WS polynomial

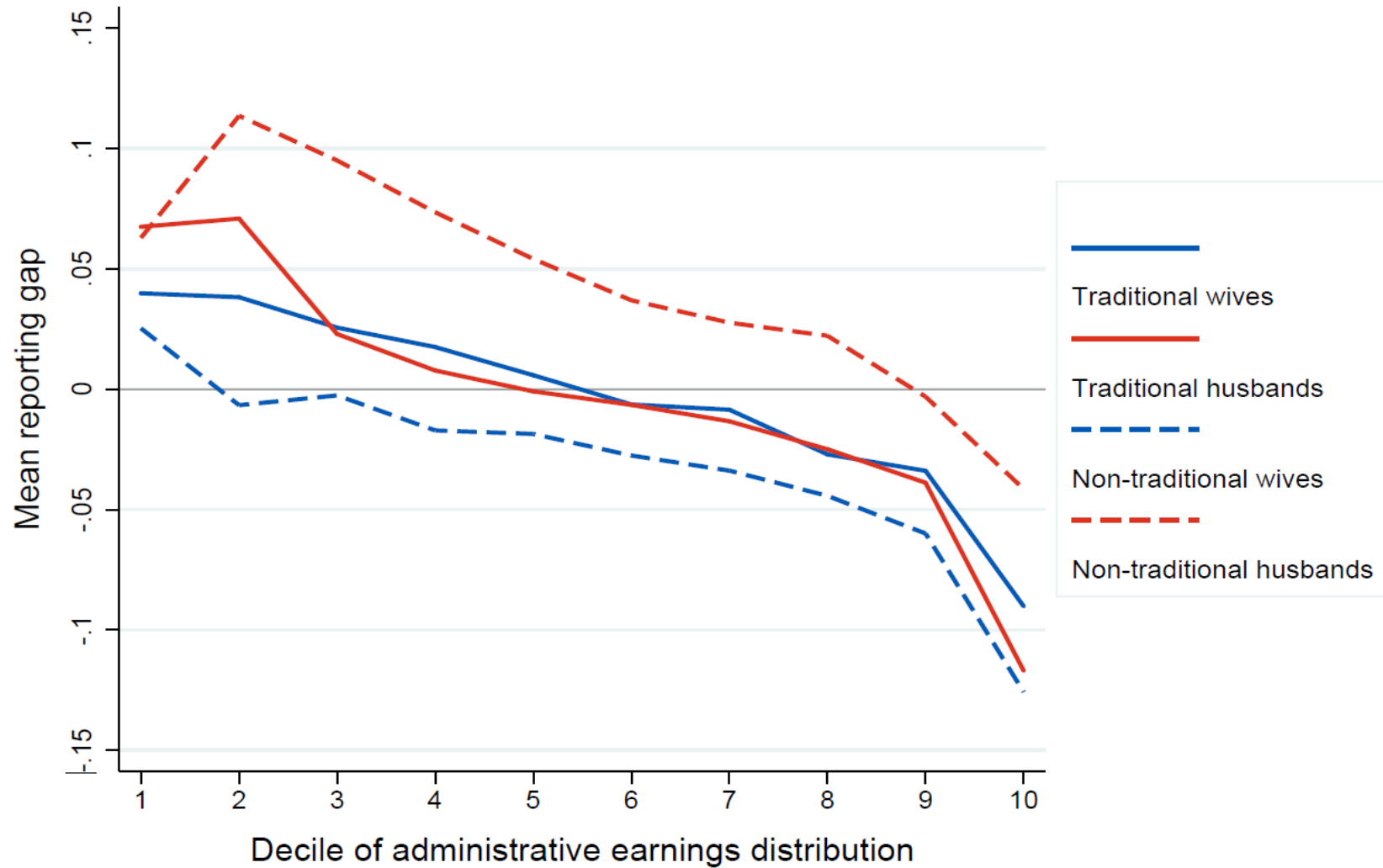
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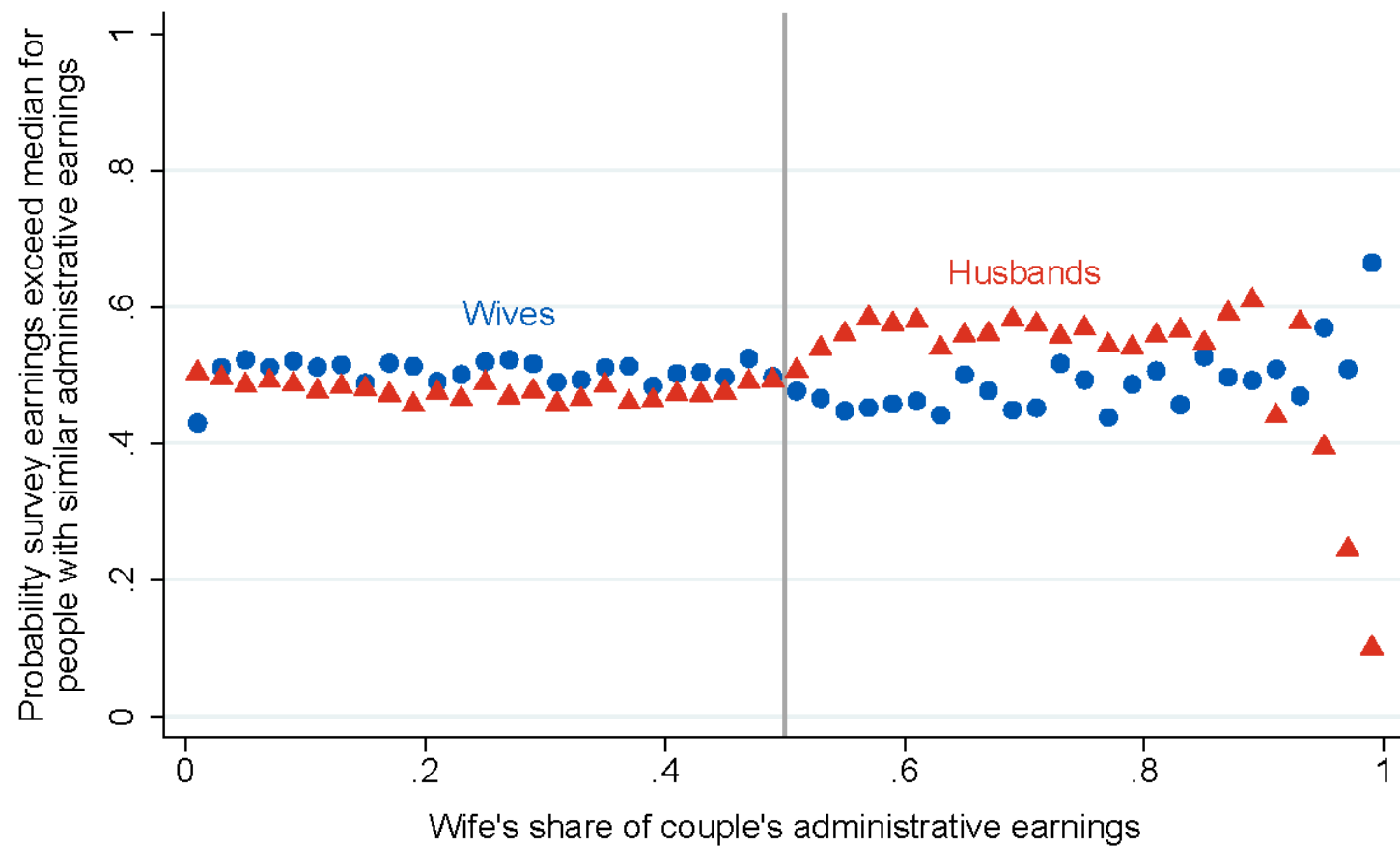
Measurement error

$$\text{Reporting gap} = \frac{\text{CPS Earnings} - \text{DER Earnings}}{\text{DER Earnings}}$$

Mean reporting gap across the administrative earnings distribution, by sex and marital earnings classification of survey subject

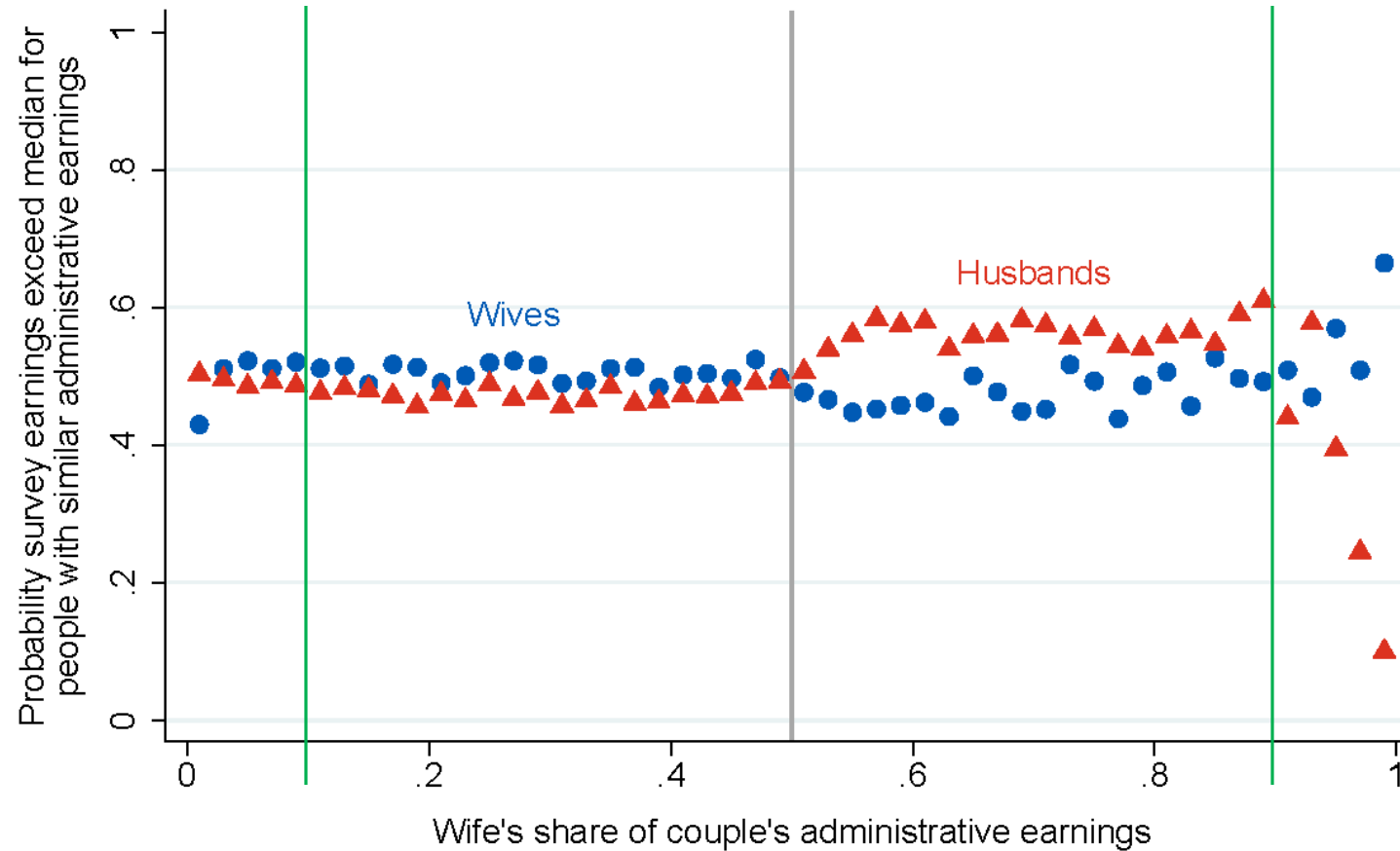


Functional Form: Linear?



Justification for trimming data

Sample: couples where each spouse earns $\geq 10\%$ of combined earnings



Estimation strategy: OLS regression

$$Y_i = \alpha + \beta Male_i + \gamma_1 Nontrad_i + \zeta_1 Z_i + Male_i \times (\gamma_2 Nontrad_i + \zeta_2 Z_i) + \epsilon_i$$

Y_i (a) Indicator for positive reporting gap

Z_i Worker and spouse: Age, race, education, cubic polynomial in DER earnings

Couple: Log of total earnings, wife's share of total earnings, region of residence, whether live in metro area, identity of household respondent

Sample Observations of employed husbands and wives where each spouse earns $\geq 10\%$ of combined earnings ($N \approx 88,500$)

Positive Reporting Gap Indicator

		(1)	(2)	(3)	(4)
<i>Wives, includes controls</i>					
	NonTrad	-0.056	-0.051	-0.049	-0.046
		(0.007)	(0.009)	(0.009)	(0.010)
<i>Wives, excludes controls</i>					
	NonTrad	-0.056	-0.051	-0.049	-0.046
		(0.007)	(0.009)	(0.009)	(0.010)
<i>Husbands, includes controls</i>					
	NonTrad	0.069	0.058	0.055	0.040
		(0.007)	(0.009)	(0.009)	(0.010)
<i>Husbands, excludes controls</i>					
	NonTrad	0.069	0.058	0.055	0.040
		(0.007)	(0.009)	(0.009)	(0.010)
	N	88,500	88,500	88,500	88,500

- Note: Polynomial of order 0 to 3 in wife's share; with & without controls
- To what extent is it over reporting of husband's earnings versus the underreporting of wife's earnings?

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- Note: Polynomial of order 0 to 3 in wife's share; with & without controls
- To what extent is it over reporting of husband's earnings versus the underreporting of wife's earnings?
- Answer: It's both.

Is it other factors?

Assessing the importance of control variables

- $Y_i = 1$ if wife's share less in CPS than DER
- Sample: Couples where each spouse earns $\geq 10\%$ of combined earnings
- Controls: husband and wife(age, race, education, earnings), total earnings, region, metro, and survey respondent

	(1)	(2)
NonTrad	0.157	0.159
	(0.011)	(0.012)
N	88,500	88,500
p-value	0.781	

(1): Quadratic with interaction, without controls

(2): Quadratic with interaction, with controls

p-value from test of H_0 : NonTrad coefficients equal across models

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Assessing the importance of control variables

- $Y_i = 1$ if wife's share less in CPS than DER
- Sample: Couples where each spouse earns $\geq 10\%$ of combined earnings
- Controls: husband and wife(age, race, education, earnings), total earnings, region, metro, and survey respondent
- **Key Finding: Coefficients are statistically indistinguishable**
- **Conclusion: Controls do not change NonTrad coefficient**

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Estimation strategy: OLS regression

$$Y_i = \alpha + \beta Male_i + \gamma_1 Nontrad_i + \zeta_1 Z_i + Male_i \times (\gamma_2 Nontrad_i + \zeta_2 Z_i) + \epsilon_i$$

Y_i (a) Indicator for positive reporting gap
(b) $\ln(\text{CPS earnings})$

Z_i Worker and spouse: Age, race, education, cubic polynomial in DER earnings

Couple: Log of total earnings, wife's share of total earnings, region of residence, whether live in metro area, identity of household respondent

Sample Observations of employed husbands and wives where each spouse earns $\geq 10\%$ of combined earnings ($N \approx 88,500$)

Impact of being nontraditional on the CPS self-reported earnings, conditional on the DER reported earnings

		(1)	(2)	(3)	(4)
<i>Wives, includes controls</i>					
	NonTrad	-0.014	-0.011	-0.011	-0.01
		(0.004)	(0.004)	(0.004)	(0.005)
<i>Wives, excludes controls</i>					
	NonTrad	0.616	-0.209	-0.032	0.033
		(0.005)	(0.007)	(0.007)	(0.009)
<i>Husbands, includes controls</i>					
	NonTrad	0.023	0.011	0.009	0.003
		(0.003)	(0.004)	(0.004)	(0.005)
<i>Husbands, excludes controls</i>					
	NonTrad	-0.477	-0.015	0.122	0.026
		(0.005)	(0.007)	(0.007)	(0.008)
	N	88,500	88,500	88,500	88,500

- *Note:* Polynomial of order 0 to 3 in wife's share; with & without controls

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- *Note:* Polynomial of order 0 to 3 in wife's share; with & without controls
- Being nontraditional results in a **1.1ppt decrease** on the value of earnings reported for wives and about a **1.1ppt increase** on the value of husbands' reported earnings.
- *Caution:* Results sensitive to specification.

Does it matter who answers the survey?

$$Y_i = \alpha + \gamma Nontrad_i + \zeta Z_i + \epsilon_i$$

Y_i (a) Indicator for positive reporting gap

Z_i Worker and spouse: Age, race, education, cubic polynomial in DER earnings

Couple: Log of total earnings, wife's share of total earnings, region of residence, whether live in metro area

Samples Observations of employed husbands and wives where each spouse earns $\geq 10\%$ of combined earnings ($N \approx 87,000$)

Positive Reporting Gap Indicator

	(1)	(2)	(3)	(4)
NonTrad	-0.041	-0.083	0.098	0.054
	(0.008)	(0.009)	(0.008)	(0.009)
N	49,000	38,000	49,000	38,000

- Does it matter who answered the survey?

(1): Wife reporting wife's earnings

(2): Husband reporting wife's earnings

(3): Wife reporting husband's earnings

(4): Husband reporting husband's earnings

Positive Reporting Gap Indicator

	(1)	(2)	(3)	(4)
NonTrad	-0.041	-0.083	0.098	0.054
	(0.008)	(0.009)	(0.008)	(0.009)
N	49,000	38,000	49,000	38,000

(1): Wife reporting wife's earnings

(2): Husband reporting wife's earnings

(3): Wife reporting husband's earnings

(4): Husband reporting husband's earnings

- Does it matter who answered the survey?
- Yes!
 - Wives underreport their own earnings and over report their husbands' earnings more than he would.
 - Husbands over report their own earnings and underreport their wives' earnings more than she would.

Conclusions

- Gendered social norms may bias measures of seemingly objective economic outcomes in household surveys
- Norms may have heterogeneous effects within gender
- Measurement error in a worker's earnings may depend on characteristics of other household members
- Researchers using household surveys to understand economic phenomenon should proceed with caution.

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Appendix: Over Reporting Earnings

