

# Gender identity and wives' labor market outcomes in West and East Germany between 1984 and 2016

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## MOTIVATION

Do wives avoid to earn more than their husbands? Bertrand et al. (2015) suggest for the U.S. that the gender identity prescription of a male breadwinner makes wives distort their labor market outcomes in order not to out-earn their spouses. We expect the prevalence of such behavior to be conditional on country-specific political and cultural frameworks.

The ‚natural experiment‘ of German division and reunification is a unique setting to examine how the rather gender-traditional market economy of West Germany and the rather gender-egalitarian socialism of East Germany shaped distinct gender identity prescriptions that affect household economic decisions differently.

## STATE OF THE LITERATURE

- Akerlof and Kranton (2000, 2010): Gender identity economics
- Bertrand et al. (2015) report a discontinuity to the right of 0.5 in the distribution of the wife's relative household income for the U.S. Wives with higher probability to out-earn their spouses are less likely to be in the labor force or earn less than their potential income.
- Codazzi et al. (2017) confirm these results for Brazil.
- No discontinuity was found for Sweden (Hederos Eriksson & Stenberg, 2015) as well as Finland and the U.S. (Zinovyeva & Tverdostup, 2018) after accounting for heaping at the 0.5 cut-off due to equal earning spouses who are co-working or self-employed.
- Winslow-Bowe (2006) reports for the UK that the income advantage of female breadwinners rarely persists for multiple years.

## METHODOLOGY AND EMPIRICAL EVIDENCE

### Empirical Strategy I – McCrary Test (2008)

Density discontinuity test for the distribution of the wife's relative household income, based on local linear regressions right and left of the cut-off (0.50001).

$$\hat{\theta} = \ln(\hat{f}^+) - \ln(\hat{f}^-)$$

### Empirical Strategy II – Fixed effects panel regression

Couple- and year-fixed effects regressions to explore how wives might distort their income subsequently to out-earning their husbands.

$$\text{LaborMarketOutcome}_{it} = \alpha_i + \beta_1 \text{wifeEarnsMore}_{i,t-1} + \beta_2 L_{i,t-1} + \beta_3 X_{it} + \epsilon_{it}$$

•  $\text{LaborMarketOutcome}_{it}$  is a placeholder for the DVs:

- (1)  $\text{wifeEarnsMore}_{i,t}$ : a dummy indicating if wife<sub>i</sub> earns more than her husband in year t
  - (2)  $\text{wifeLFP}_{i,t}$ : dummy indicating whether wife<sub>i</sub> is participating in the labor force for in year t
  - (3)  $\text{wifeWorkHours}_{i,t}$ : weekly contractual work hours wife<sub>i</sub> in year t
- $\text{wifeEarnsMore}_{i,t-1}$ : wife<sub>i</sub> earns more than her husband at t-1
  - $L_{i,t-1}$ : cubics of log. annual labor income of wife and husband, wife's relative HH labor income, share of imputed income values – all at t-1
  - $X_{it}$ : district unemployment rate, dummies for 5-year age groups of wife and husband, dummies for age of the youngest child in HH, dummies for survey year – all at t

**Limitation:** The fixed effects model only considers within-variation. Thus, effects can only be estimated for wives that are actually cross the 0.5 threshold of relative income.

### Results I – Distribution of relative income

A drop at 50% of the relative household labor income indicates that wives avoid to out-earn their husbands.

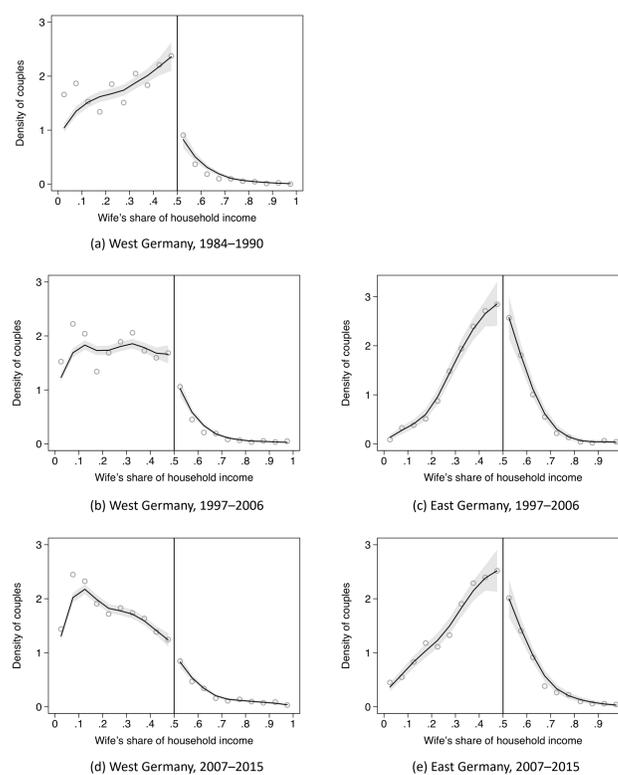


Figure 1. Distribution of relative annual income of wives over time for West and East Germany. Dots reflect the density of couples in a 0.05 income bin, the solid line is the local linear regression smoother allowing for a break at the cut-off, CI 95%.

### Results II – Panel regression estimates

Table 1. Panel regression estimates

	West Germany			East Germany	
	(1) 1984-1990	(2) 1997-2006	(3) 2007-2016	(4) 1997-2006	(5) 2007-2016
Dependent variable: <i>Wife earns more in t</i>					
<i>wifeEarnsMore</i> in t-1	-0.085* (0.036)	-0.064* (0.028)	-0.048 (0.030)	-0.020 (0.035)	-0.044 (0.044)
R-squared	0.023	0.013	0.016	0.018	0.022
R-squared (adj.)	0.017	0.009	0.013	0.008	0.011
N	5,942	11,679	13,283	3,583	3,235
n	1,742	3,070	4,191	840	876
Dependent variable: <i>Wife participates in the labor force in t</i>					
<i>wifeEarnsMore</i> in t-1	0.011 (0.017)	0.030* (0.011)	0.016 (0.010)	-0.010 (0.009)	-0.002 (0.020)
R-squared	0.129	0.091	0.043	0.042	0.030
R-squared (adj.)	0.125	0.088	0.041	0.033	0.021
N	6,602	13,287	17,991	3,928	4,128
n	1,967	3,648	5,483	943	1,070
Dependent variable: <i>Weekly work hours of wife in t</i>					
<i>wifeEarnsMore</i> in t-1	-1.350*** (0.400)	-0.481 (0.333)	0.098 (0.357)	0.099 (0.420)	-0.257 (0.383)
R-squared	0.189	0.152	0.148	0.107	0.011
R-squared (adj.)	0.183	0.149	0.145	0.097	0.000
N	5,061	10,409	11,854	3,378	3,049
n	1,449	2,775	3,679	788	791

Notes: Unweighted regressions. Standard errors clustered on couple level in parentheses; † p<0.10, \* p<0.05, \*\* p<0.01, \*\*\* p<0.001.

- ▶ For West Germany, the drop in the distribution of relative income decreased significantly since reunification (ttest, p<0.01): 59% (1984-90, p<0.01), 24% (1997-06, p<0.05), 12% (2007-16, n.s.)
- ▶ No significant drop in East Germany, but negative trend between 1997-06 (-1%) and 2007-15 (11%) → convergence East and West
- ▶ Significant panel regression effects only for West Germany. A wife's out-earning of her husband in year t-1 is associated with:
  - ▶ Prior to reunification (1984-90)
    - (1) 8.5 pp. decrease in probability to out-earn him at t
    - (2) reduced contractual work hours of the wife by 1.4 at t
  - ▶ 1997-2006
    - (1) 6.5 pp. decrease in probability to out-earn him at t
    - (2) 3.0 pp. increase in labor force participation probability at t

## DATA AND HYPOTHESIS

- Data are years 1984-2016 from the German Socio-Economic Panel, SOEP v33.1, doi:10.5684/soep.v33.1
- We consider 1984-1990 for West Germany preceding the reunification, and 1997-2006 as well as 2007-2016 for West and East Germany
- We exclude 1991-1996 as we expect that the economic turbulences of reunification (especially in East Germany) affected the distribution of relative household income
- **Sample:** We consider married couples; age 25-64; both having positive annual income; no spouse self-employed; both not in education, vocational training, civil service or parental leave; both not receiving pensions or unemployment benefits (n=13111).
- **Income:** We use inflation adjusted annual labor income from primary and secondary jobs as well as bonus payments

### Adjustment of heaped income share 0.5

The McCrary Test is biased in the presence of heaping at the cut-off, but a substantial fraction of couples in the SOEP report exactly the same income. We conduct the following adjustment steps:

- We exclude all couples where both spouses work in companies of the same size, in the same industry (NACE) and have the same occupation to account for similar incomes due to co-working
- We exclude all couples where at least one spouse is self-employed
- We account for rounding by survey respondents. We de-round income values that are integer multiples of  $k = [50; 100; 500; 1000; 5000; 10000]$  in the SOEP exceeding the respective fraction in administrative tax data (FAST 2010). If the couple is selected for de-rounding, a random draw from a normal distribution  $N(0; R_k)$  is added to the individual income values, where  $R_k = k/6$

- We drop the remaining fraction of equal earning couples exceeding the respective fraction in the tax data
- Remaining share of spouses having the same income: 0,1%.

### Hypotheses

**H1:** The distribution of the wife's relative household labor income drops at the point of equal earnings of spouses (0.5)

**H2:** A wife whose income exceeds that of her husband subsequently attempts to reinstate gender identity conformity by

- (a) no longer earning more
- (b) leaving the labor force, or
- (c) reducing her working hours

## CONCLUSIONS

- Our results suggest that the male breadwinner prescription was considerably more prevalent in West Germany compared to East Germany prior to reunification. This finding is consistent with the assumption that country-specific political frameworks affect gender identity prescriptions. In the socialist GDR, the 50% benchmark of relative income is apparently of no particular significance to spouses.
- Since reunification, gender identity prescriptions seem to have become more egalitarian in West Germany, converging with the consistently more gender egalitarian East Germany. This development may both be an effect of reunification as well as a time-related trend toward emancipation
- The male breadwinner model appears to affect household economic decisions to a lesser extent in present day Germany

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