Dale Mortensen Lecture
SED 2018

Earnings, Marriage, and Family Income: Dynamics and Distribution

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Questions

1. What drives distribution of family income an **individual** experiences during adult life?
2. What factors determine earnings and nonlabor income dynamics and distribution?
3. What are the channels?

Keys to Answers: Labor Market and Marriage Market

1. Labor market income
   - Ability, Education, OJT
   - Unemployment Shocks
   - Labor Supply Shocks
   - Search
2. Marriage Market
   - Time spent married versus single
   - Whom one marries → spouse's labor market potential, earnings

This Talk: Discuss recent research on the 3 elements:

1. Dynamic models of individual earnings
   - Univariate Models (brief)
   - Multivariate Models of Wages, Hours, and Earnings
     - Approaches
     - Results on sources of Earnings Growth
     - Understanding shocks
     - Sources of earnings variance
2. Then earnings, family formation, and an Individual's Family Income
   - Current research (with **Disa Hynsjö** and **Ivan Vidangos**)
   - Related Research
3. Research Directions

Modeling Earnings

Univariate Earnings or Income Processes and Inequality.

Long History

- *Lillard and Willis (1978), Lillard and Weiss (1979), Abowd and Card (1989), Baker and Solon (2003), Meghir and Pistaferri (2004), many others*

Questions:

The nature of the earnings process:

- Random walk process?
- Heterogenous slopes
- Transitory component
- Nonnormality, Nonlinear process. *Geweke & Keane (2000), Browning et al (2010), Guvenen et al (2015), Arellano, Blundell and Bonhomme (2017)), De Nardi, Fella & Paz Pardo (2018)*.

Input to Studying Consumption, Measurement of Risk and uncertainty

- Eg. Hall and Mishkin (1982),Blundell and Preston (1998), Storesletten et al. (2004), Krueger and Perri (2006), Heathcote et al. (2007), Attanasio and Pavoni (2011), Blundell et al. (2008), Guvenen and Smith (2014) and others

Role of persistent and transitory shocks in inequality.

Moffitt and Gottschalk (1994, 1995, 2011). DeBacker et al (2013), Arellano, Blundell and Bonhomme (2017))

Insurance through taxes/transfers, other family income.

Blundell and Preston, Blundell, Graber & Mogstad (2015) , others.

LIMITATIONS OF UNIVARIATE MODELS

- No information about specific sources of variation or their relative importance
    - key for policy questions: e.g. social insurance
- No information about the channels of the effects of shocks

Multivariate Models of Earnings: Wages, Unemployment and Hours.

- **Early Papers, largely Statistical**
  - Eg. MaCurdy (1983), Abowd and Card (1989)

  - **I Discuss 3 Approaches**
  - *Structural*
    - Bagger, Fontaine, Postel-Vinay and Robin (BFPR, (2014), wages only
    - Low, Meghir and Pistaferri (LMP, 2010)
  - *Statistical, Closely Guided by Theory*
    - Altonji, Smith, and Vidangos (ASV, 2013)

Bagger, J., F. Fontaine, F. Postel-Vinay and J.-M. Robin, 2014 (BFPR)

Structural Model of Wages, Employment, and Job Mobility

- Equilibrium Search Framework
- Heterogenous firm productivity (*p*)
- Heterogenous worker productivity
- Transitory (Autoregressive) worker specific productivity component
- Human capital accumulation
- Search from unemployment and on the job
- Wage bargaining in response to outside offers
- Exogenous layoffs

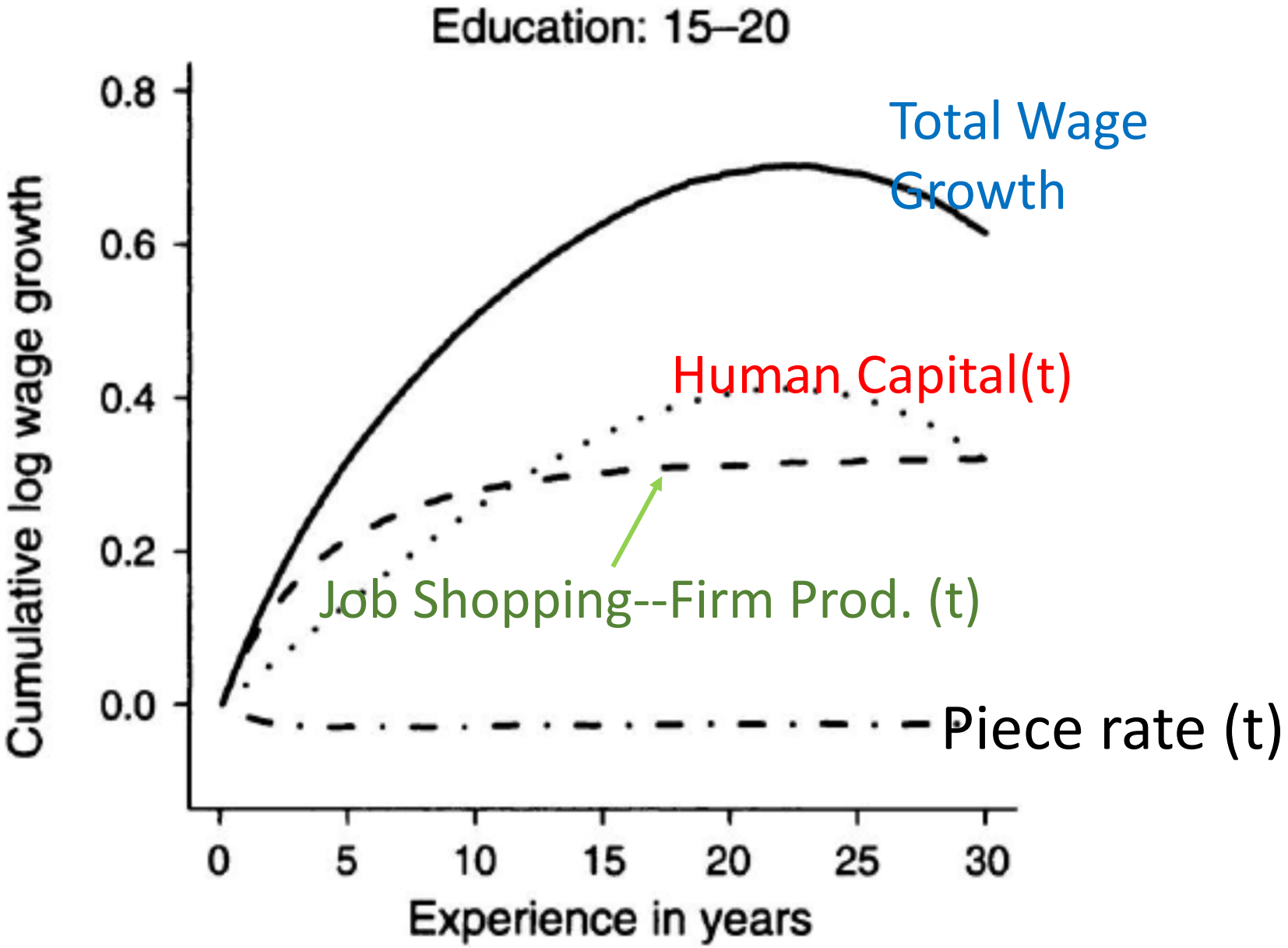
DATA

- Matched Employer-Employee panel data on wages, job spells, unemployment spells and firm output (Denmark)
  - Can quantify importance of firm heterogeneity for wage inequality.

Main Findings About Wage Growth

1. HC accumulation and job shopping (gains in *p*) explain most of the wage growth over a career
2. HC most important for high EDUC group.
3. Gains from job shopping largest in first 10 years.
4. Much heterogeneity between workers in the same firm and between workers in different firms in within-firm growth
   - Can think of as return to tenure.
   - But it does not account for wage growth over a career.

DECOMPOSITION OF CAREER WAGE GROWTH



Wage Variance Decomposition

Contribution of $Var(ability_i)$ is small

$Var(trans\ prod_{it} \mid t)$ is modest, constant over t

$Var(\ firm\ prod_{it}\ )$is very large, increases with t,

$Var(\ piece\ rate_{it} \mid t)$ is large, constant

but $2Cov(\ firm\ prod_{it},\ piece\ rate_{it}\ )$is negative

$firm\ prod_{it}$ rises with job shopping, but workers get a lower piece rate at start of a match with high productivity firm.

$Var(ability_i)$ would be more important for average lifetime wage.

Low, Meghir and Pistaferri (2010) (LMP)

- Preferences over consumption and employment
- Max expected lifetime utility
- Intertemporal budget constraint, no borrowing.
- Random walk process for individual productivity
- Job match heterogeneity
- Search from unemployment on the job
- Exogenous separations
- food stamps, DI, UI are modeled
- **Choices:** Consumption, labor supply, job mobility, apply for DI

LMP Decomp. of Wage Growth

- High Education:
  - **Job Shopping** contributes about **1/3** of wage growth, more early in a career
  - **Human capital** about 2/3
- Low Education
  - Less growth. Job shopping and HC contribute equally till age 45.
  - Job shopping more important later (surprising).

LMP: Sources of Risk, Value of Insurance

- LMP don't decompose that variance in lifetime earnings, income or consumption.
- *Utility based model*, so can estimate willingness to pay to reduce wage and job destruction risk.
- **Wage risk:** High-educated would pay 19.2% of consumption to avoid a 50% increase in the variance of the permanent wage shocks
- **Job Destruction**: Low educated would pay about 5% of consumption to reduce risk to level of high educated workers
- Estimate value of DI and Food Stamps.

Altonji, Smith and Vidangos (2013) (ASV)

- Joint model of earnings, employment, job changes, wage rates, and work hours
- Equations approximate decision rules based current state variables

- **Key Features**:
  - Duration dependence in employment and job matches
  - multiple sources of unobserved het.
  - job-specific error components in wage and hours
  - multiple shocks, and measurement error

- Use model to:
  - identify channels through which various shocks operate
  - estimate dynamic response of wage, hours, and earnings to various shocks
  - Decompose the variance of life time hours, wages, and earnings

Sketch of the Model

- Exogenous Variables:
  - race, education, potential experience,
  - unobserved ability component μ_i, and unobserved mobility component η_i
- Labor Market Entry:
  - Draw of employment status shock that determines employment
  - Draw of autoregressive wage component capturing part of "general productivity“ (ω_{it}).
  - Draw of job-specific wage component $\upsilon_{ij(1)}$ and job-specific hours component $\xi_{ij(1)}$.

Wages

- Depend on X_{it},
- Ability component μ_i
- productivity component ω_{it}
  - Unemployment spells reduce ω_{it}
- job-specific component $v_{ij(t)}$
- Job seniority.

Employment Transitions and Job Changes

- $E_{it}/U_{it\text{-}1}$ = f(X_{it-1}, ability μ_i , mobility component η_i and iid shock).

- $E_{it}/E_{t\text{-}1}$=f(X_{it-1}, wage, μ_i, η_i , employment duration, and iid shock)

Job to Job Mobility

- Employed receive draw $\upsilon'_{ij(t)}$ of the job-specific wage component for a *potential* new job.

$$\upsilon'_{ij'(t)} = \rho_{\upsilon}\upsilon_{ij(t)} + shock$$

- Find ρ_{υ} is 0.69

➔wage offers are based on salary history or related to past job quality (BFPR (2014)).

- Quits depend on the heterogeneity terms and an i.i.d. shock.
- Quits **drop** with $\upsilon_{ij(t-1)}$, **rise** with $\upsilon_{ij\prime(t)}$, and **fall** with job seniority,
- Workers draw $\upsilon_{ij(t)}$ at random when they leave unemployment.

Annual hours and Earnings

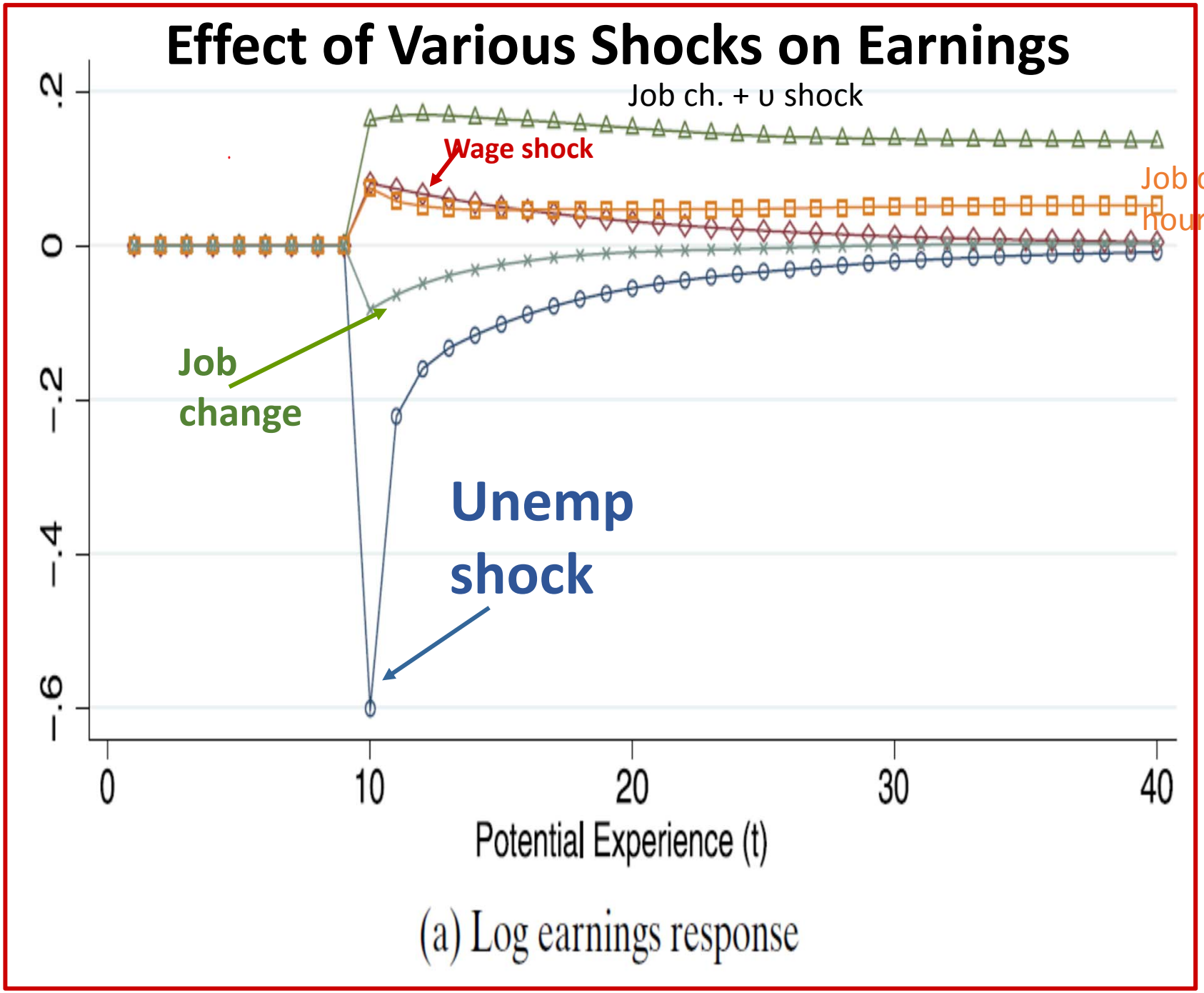
- Annual hours depend on
  - employment status at survey date
  - Heterogeneity μ_i, η_i
  - the wage
  - job match hours component ξ_i
    - Altonji and Paxson (1986)
  - iid error (LS shocks, Temp unemp)
- Annual Earnings are determined by wage and hours. Plus an earnings component capturing multiple job holding, overtime pay, commissions etc.

DATA: PSID, male household heads

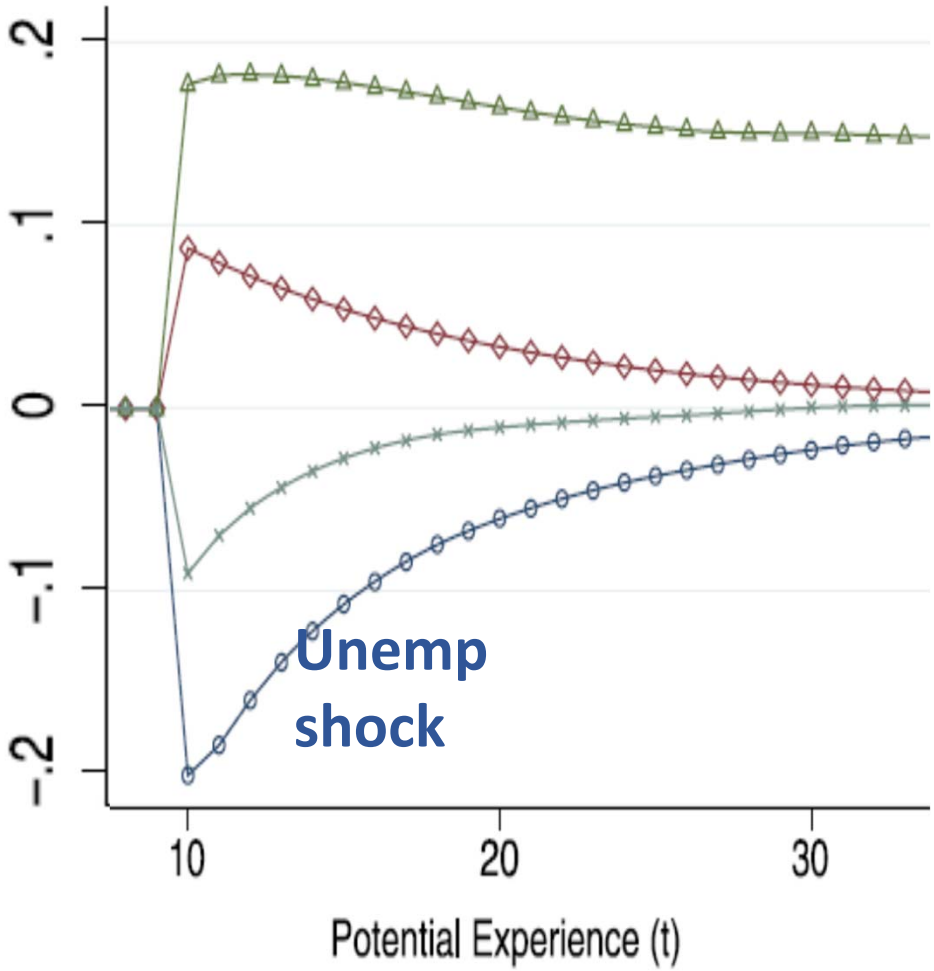
ESTIMATION: Indirect Inference

Dynamic Effects of Labor Market Shocks (IRFs)

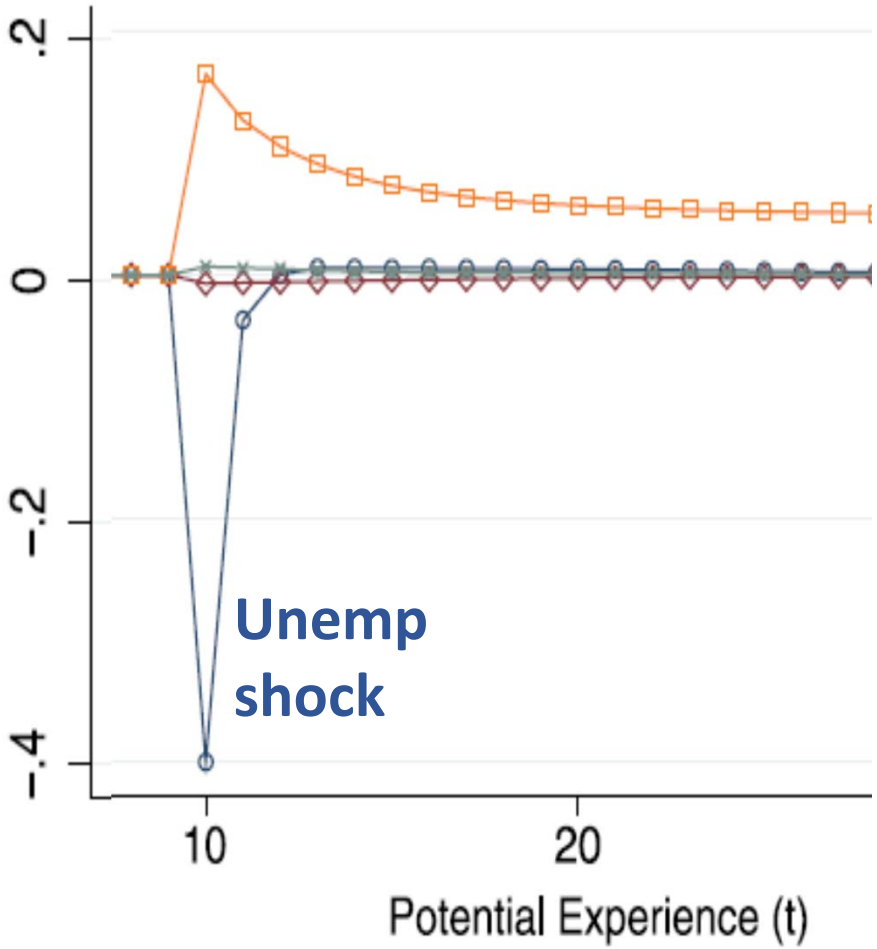
Effect of Various Shocks on Earnings



(a) Log earnings response



(b) Log wage response



(c) Log hours response

unemployment shock

job change + 1 st dev υ shock

job change shock

1 st dev ω shock

job change + 1 st dev ξ shock

Sources of the 0.2 wage loss from unemployment.

drop in persistent wage comp. ω_{it} : 0.12

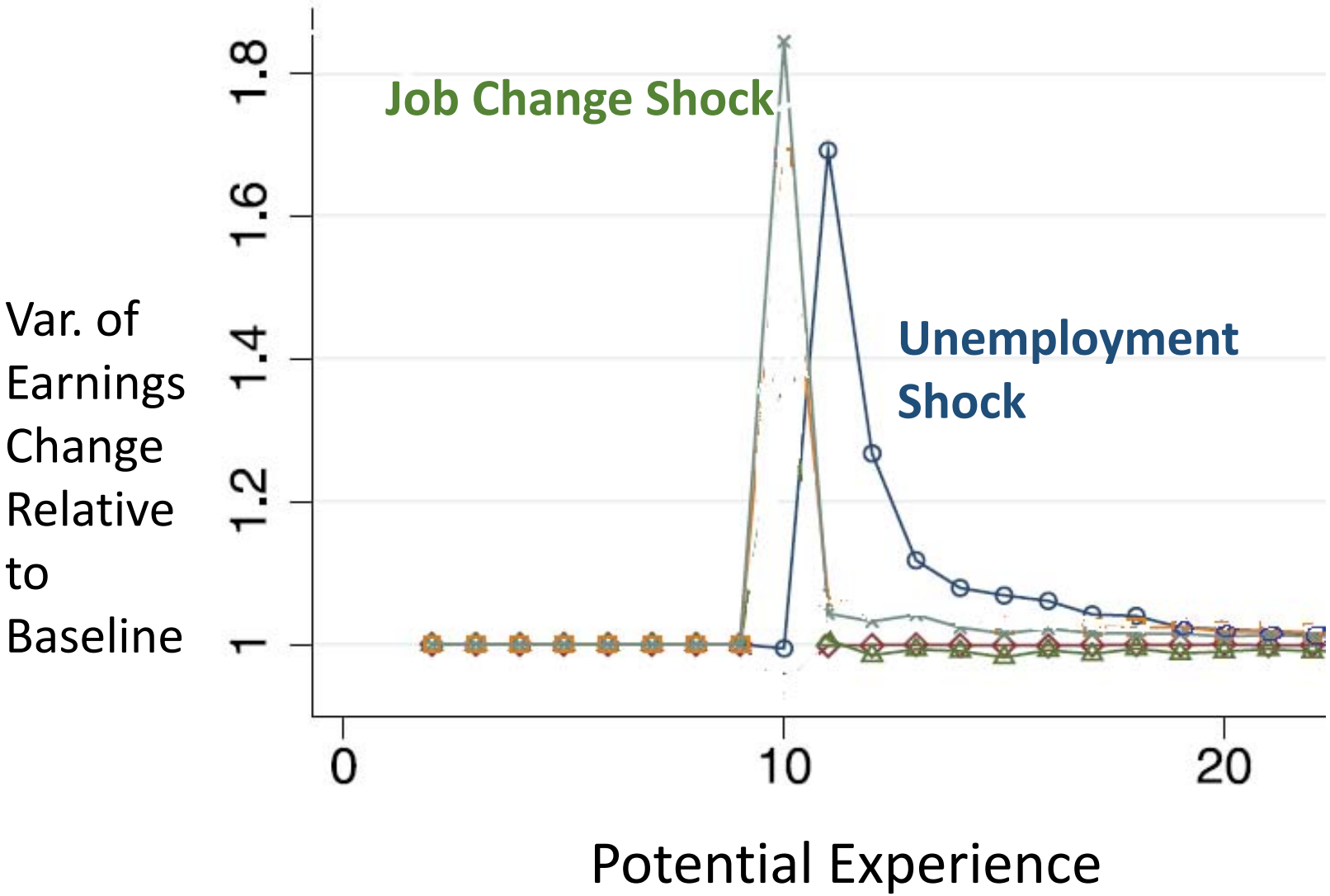
lost job tenure : 0.06

drop in job-specific wage comp. $\upsilon_{ij(t)}$: 0.02

Contributions of General HC, Job Shopping and Tenure to Career Wage Growth

Impulse Response of the Variance of Earnings Growth

UNEMP Shocks and **Exog job changes** have large positive effects on the variance of earnings changes



Decomposing the Variance in Lifetime Earnings

Caveat: Estimates vary somewhat across education groups and model specifications.

1. job-specific hours and wage components, UNEMP shocks, & job change shocks account for **43.0%** of Var(lifetime earnings).
2. Job-specific wage shocks dominate for wages
   Job-specific hours shocks dominate for hours.
3. **Education** accounts for 30% of VAR of lifetime earnings, almost entirely through wages.

4. Unobs. Heterogeneity, education and the initial values of the general skill and job-specific wage components account for

- 55.3% of Var. in lifetime earnings
- 44.6% of Var. in lifetime wages rates

- ➔Much uncertainty is resolved early.

  (Hugget et al, Keane & Wolpin, Storesletten et al)

Bringing Marriage into the Picture.

Based on “Marriage Dynamics, Earning Dynamics, and Lifetime Family Income” (with **Disa Hynsjö** and **Ivan Vidangos**)

Approach

- Dynamic model of earnings, marriage, nonlabor earnings, fertility, and family income
- Simulate earnings, marriage and family income over a lifetime.
- Similar in spirit to Altonji, Smith, Vidangos (ASV 2013) but more descriptive
- Much bigger model

ESTIMATION APPROACH

- Estimate equations separately, using simple methods (multinomial probit, dynamic multinomial logit, Method of Moments, IV, OLS)
  - Mostly abstract from correlated unobserved heterogeneity across different equations (except in wages)
  - Some coefficient estimates will be inconsistent

DATA

- PSID, 1969-1996

Related to Vast Literature

- **Multivariate Earnings Models**
- **Labor Supply Literature**
- **Marital Status, Children and Earnings, Family Income**
- **Marriage Formation and Sorting**
  - **No Search:** *Becker (1973, 1974, 1981) subsequent papers such as Becker, Landes and Michael (1977), Weiss and Willis (1993), Choo and Siow (2006), Chiappori and Oreficce (2008), Chiappori, Iyigun and Weiss (2009), Chiappori and Meghir (2016). Browning, Chiappori, and Weiss (2015)*

- **Marriage Formation and Sorting**
  - **With Search:** *Mortensen (1988), Burdett and Coles (1997, 1999), Shimer and Smith (2000), Jacquemet and Robin (2012).*
  - **Empirical:** *Wong (2003), Gousse, Jaquemet and Robin (2017) and others*

- **Marital Sorting and Inequality**
  - *Shaw (1992), (Kremer (1997), Fernandez and Rogerson (2001), and Fernandez, Guner, and Knowles (2005), Chiappori Salanie and Wiess (2017)*

Our Contribution

- Bring earnings processes, marriage formation and dissolution, sorting, and fertility into a model of income dynamics.

Earnings Model and Selected Results

Almost all equations include:

- Education interacted with a potential experience polynomial (or age)
- Separate equations for men and women.
- For women, most parameters depend on marital status.

Labor Market Status Transitions

Dynamic 3-state model for employment status at survey date: E_{it}, U_{it}, N_{it}

Separate models for married women, for single women and men with MAR control

unobserved heterogeneity

State Dependence

Key Employment Results

- Positive effect of education.
- Strong state dependence.
- Strong negative effect of children and marriage for women, not men
- Unobserved heterogeneity important
- Wages don’t matter much for transitions.

Latent Log Hourly Wage $wage_{it}^{lat}$

- Separate models for men and for women women
- For employed individuals $wage_{it} = wage_{it}^{lat}$
- For nonemployed, $wage_{it}^{lat}$ captures process for wage offers

Log Hourly Wage

- Separate models for men, for married women, and for single women

$$wage_{it} = E_{it} \cdot wage_{it}^{lat}$$

$$wage_{it}^{lat} = \gamma_X^w X_{it}^w + \mu_i + \omega_{it}$$

$$X_{it}^w = [EDUC_i, MAR_{it}, PE_{it}, PE_{it}^2, PE_{it}^3,$$
$$EDUC_i PE_{it}, EDUC_i PE_{it}^2, EDUC_i PE_{it}^3,$$
$$CH05_{it}, CH612_{it}, CH1318_{it}]$$

$$\omega_{it} = \gamma_0^\omega + \rho_\omega \omega_{i,t-1} + \gamma_E^\omega E_{i,t-1} + \gamma_U^\omega U_{i,t-1} + u_{it}^\omega$$

$$u_{it}^\omega \sim N(0, \sigma_{u^\omega}^2)$$

- For employed individuals (i.e. $E_{it} = 1$), $wage_{it}$ equals $wage_{it}^{lat}$
- For nonemployed, $wage_{it}^{lat}$ captures process for wage offers

- Wage depends on “ability” μ_i
- Marriage, Unemp, Employment (*Endogenous)*
- Persistent component ω_{it} picks up general skills and job-match-specific components that change slowly
  - job mobility not modeled, unlike ASV
- At age 25, ω_{i25} drawn

Log Hourly Wage Women $age>25$

$$\begin{aligned}\mathbf{wage}_{it} = & \underset{(.007)}{\mathbf{.116}}\mathbf{EDUC}_i - \underset{(.0009)}{\mathbf{.0007}}\mathbf{EDUC}_i * PE_{it} + \underset{(.000024)}{\mathbf{.00003}}\mathbf{EDUC}_i * PE_{it}^2 \\ & - \underset{(.010)}{\mathbf{.027}}\mathbf{MAR}_{it} - \underset{(.007)}{\mathbf{.044}}CH05_{it} - \underset{(.006)}{\mathbf{.086}}CH612_{it} - \underset{(.007)}{\mathbf{.076}}CH1318_{it} \\ & + \textit{constant}, PE_{it}, PE_{it}^2, PE_{it}^3, t, t^2, t^3.. \\ & + \omega_{it} + \mu_i\end{aligned}$$

$$\boldsymbol{\omega}_{it} = \underset{(.005)}{-.037} + \underset{(.042)}{\mathbf{.830}}\boldsymbol{\omega}_{i,t-1} + \underset{(.006)}{\mathbf{.053}}\mathbf{E}_{i,t-1} - \underset{(.019)}{\mathbf{.021}}\mathbf{U}_{i,t-1} + 0.265 * N(0,1)$$

St Dev, permanent wage component

$$\mu_i \sim N(0,\sigma_\mu^2): \sigma_\mu = 0.211$$

Log Annual Hours | Labor force status

Hours depend on E_{it}, U_{it}

- Wage
- Age, education
- Individual heterogeneity
- Marital status

Single and Married Women: add

- Children

Married Women:

- spouse's wage (+) and unemployment status (+)

Marriage and Divorce

Single to Married

- $wage_{it-1}^{lat}$ and education raise marriage prob. for single men but *not* for single women
- Young children raise marriage probability

Married to Married

1. Husband's and wife's education. (Positive)
2. Husband's and wife's latent wage. (not significant)
3. normalized |gap| between spouses' wage rates, education, and age not important
4. Children have strong positive effect
5. **Unobserved marriage specific match quality component important**
6. Strong positive duration dependence.
7. i.i.d. shocks

Who Marries Whom?

Spouse Characteristics at start of marriage|Own Characteristics

- Need initial values of all spouse characteristics that enter earnings model
- Multivariate models for distrib. of
  - spouse's education
  - age
  - labor force status
  - permanent wage component
  - autoregressive wage component
- Own children enter equations for spouse's education and wage.

A Few Sorting Results

- Strong sorting on education and age, in keeping with vast literature.
- Own wage raises spouse's latent wage rate.
  - About 0.5 for women; 0.3 for men.
- Own Education raises spouse's laten wage
  - About 0.02 for women; 0.05 for men.
- Existing children lower spouse's education. For women, also lower spouse's wage.

Nonlabor Income and Family Income

Nonlabor income = capital income + public and private transfers

- Depends on:
  - Lagged Nonlabor income, education, age, children, hours, Emp. and the wage.
  - (both Husband and wife's variables enter for continuing marriages)

FAMILY INCOME:

earnings + spouse earnings + unearned income

Initial Conditions for Employment, Mar, Children

- The first period in the model corresponds to age 25 (of PSID sample members)
- Joint distribution of $(E_{i,25}, MAR_{i,25}, NCH_{i,25})$ depends on $EDUC_i, FEM_i,$
- Birth Cohort Specific

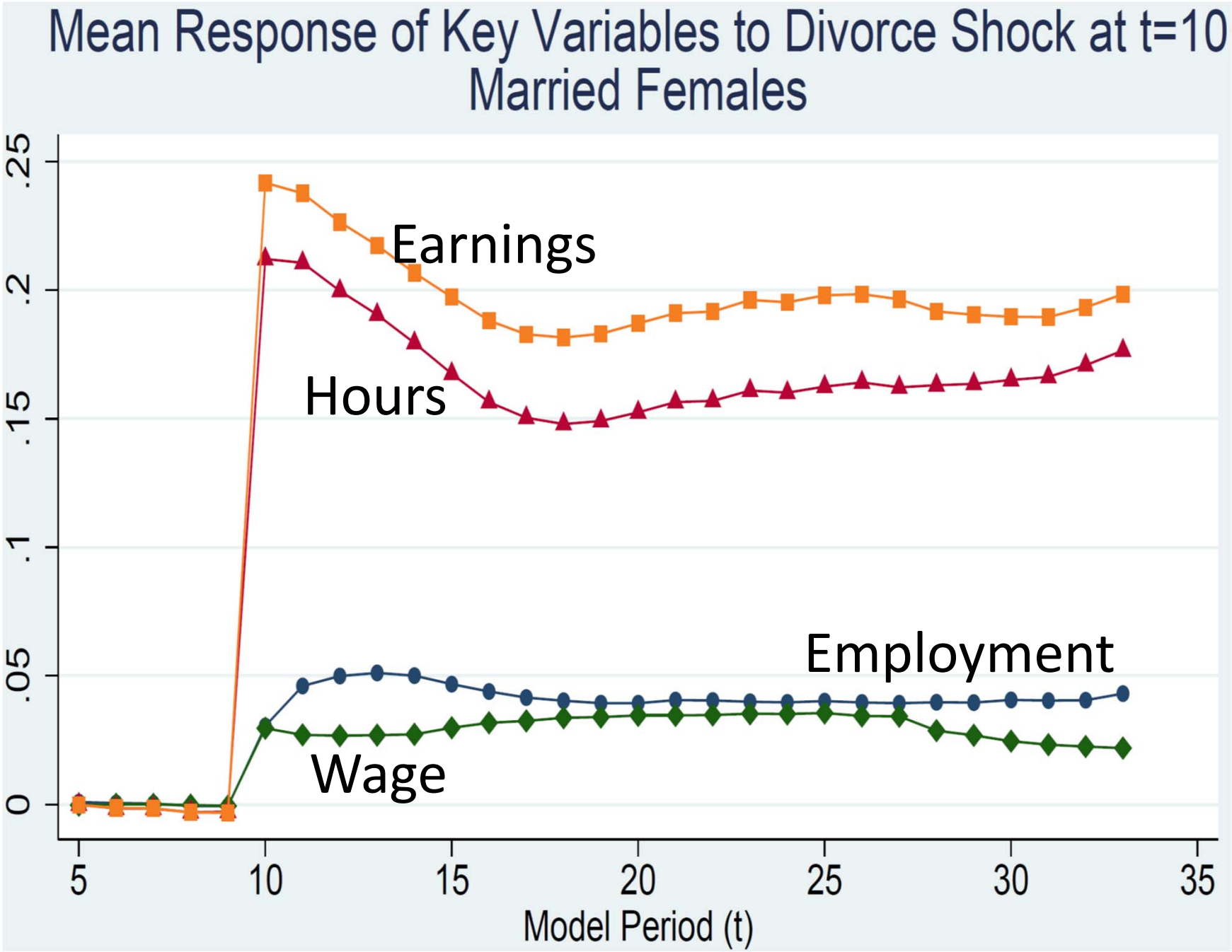
Model Fit (Could be better)

- Simulate model for large number of individuals starting at age 25.
- Compare means, standard deviations, age profiles, autocorrelations, regression relationships, by gender and by gender/marriage status
- Means and SD of earning are off for some subgroups.
- Simulated data substantially understates persistence in wages, earnings and family income.
- Hours are not persistent enough. Persistence in Wages is understated at long lags.

Using the Model to Study Effects of Marriage, Labor Market and Fertility Shocks

Take gender, education distribution from PSID for birth cohort 1951-1955.

- **Base Case**: Simulate model for large number of individuals, age 25 to age 57.
- "**Counterfactual**": Simulate again, **but**:
  - At age=34, impose a "shock" on all individuals of a particular gender & marital status
  - After shock, all variables evolve according to model through age 57
  - Display *deviations* from "base case"


Mean Response of Key Variables to Divorce Shock at t=10
Married Females
Earnings
Hours
Employment
Wage
0
.05
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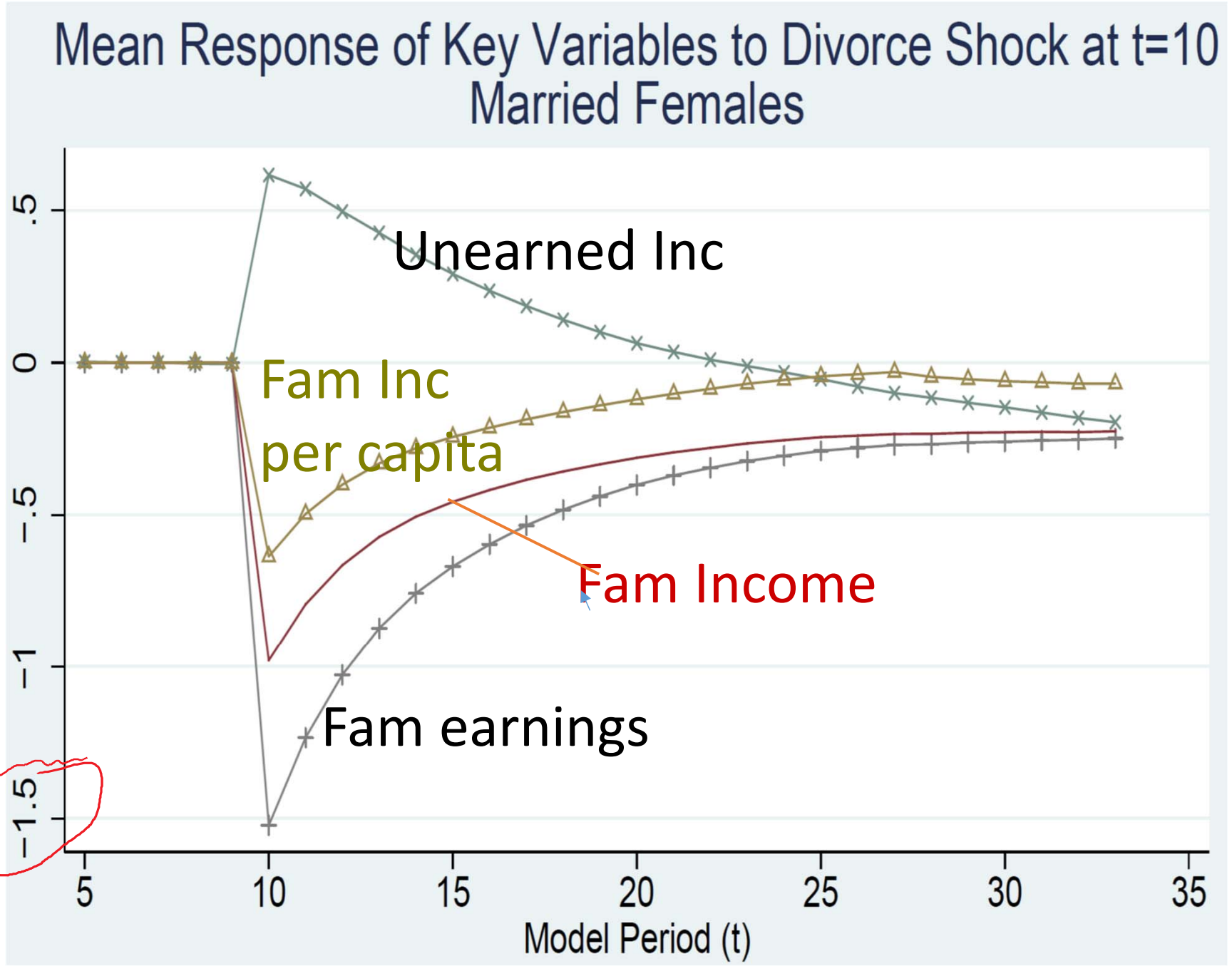
25
30
35
Model Period (t)


Mean Response of Key Variables to Divorce Shock at t=10
Married Females
Unearned Inc
Fam Inc
per capita
Fam Income
Fam earnings
.5
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−1.5
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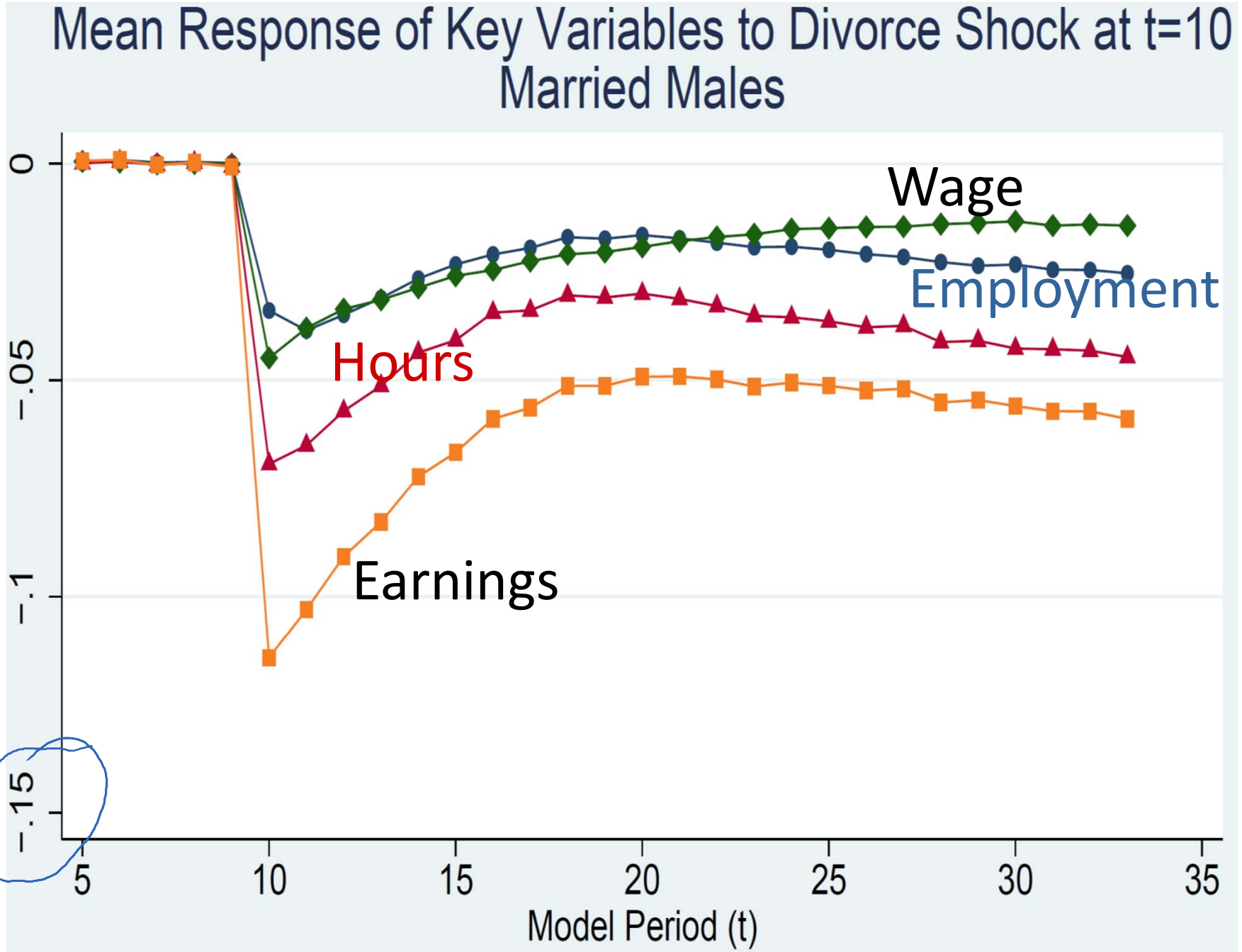
35
Model Period (t)


Mean Response of Key Variables to Divorce Shock at t=10
Married Males
0
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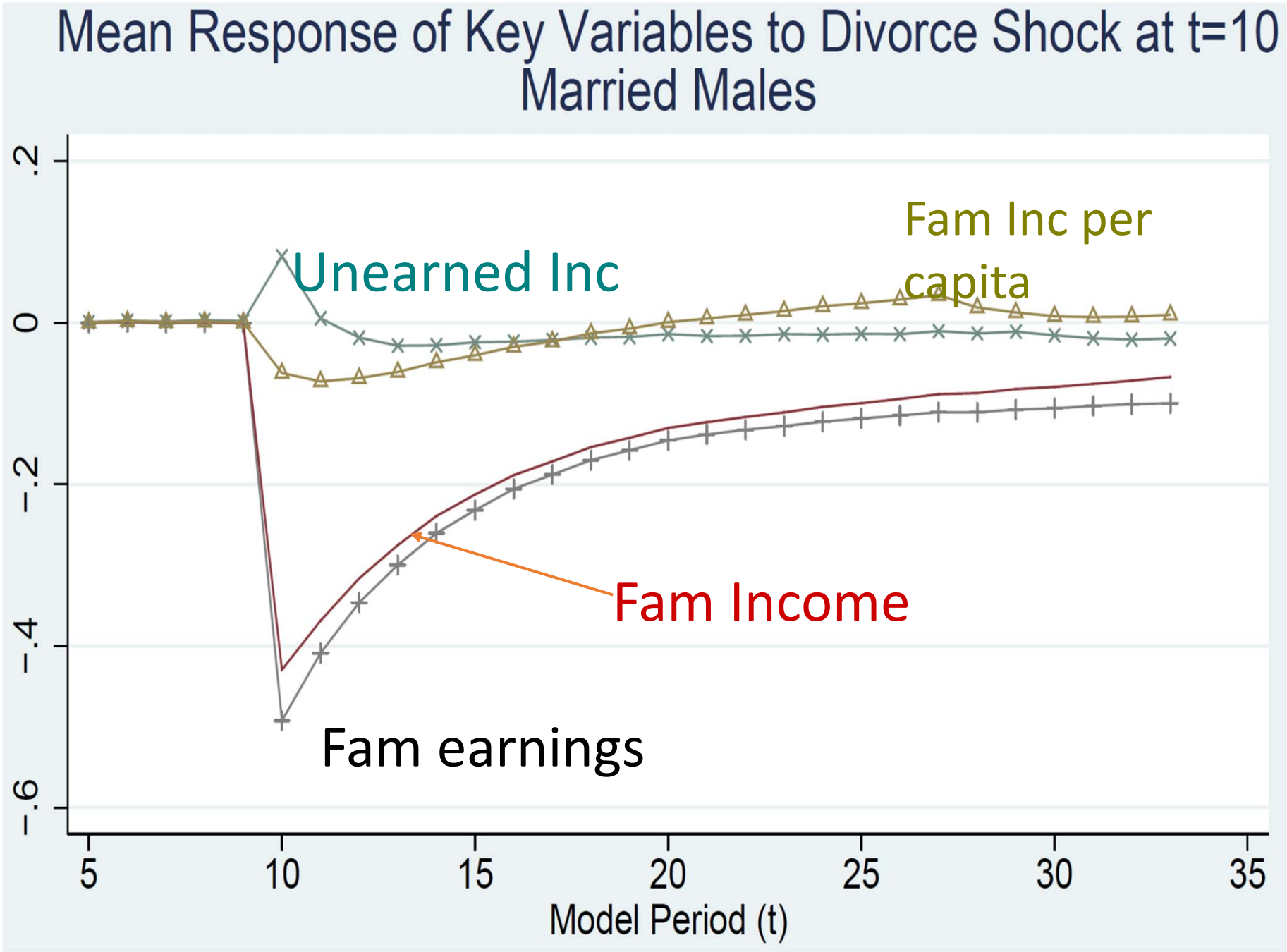
Model Period (t)
Wage
Employment
Hours
Earnings


Mean Response of Key Variables to Divorce Shock at t=10
Married Males
.2
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−.6
Unearned Inc
Fam Inc per capita
Fam Income
Fam earnings
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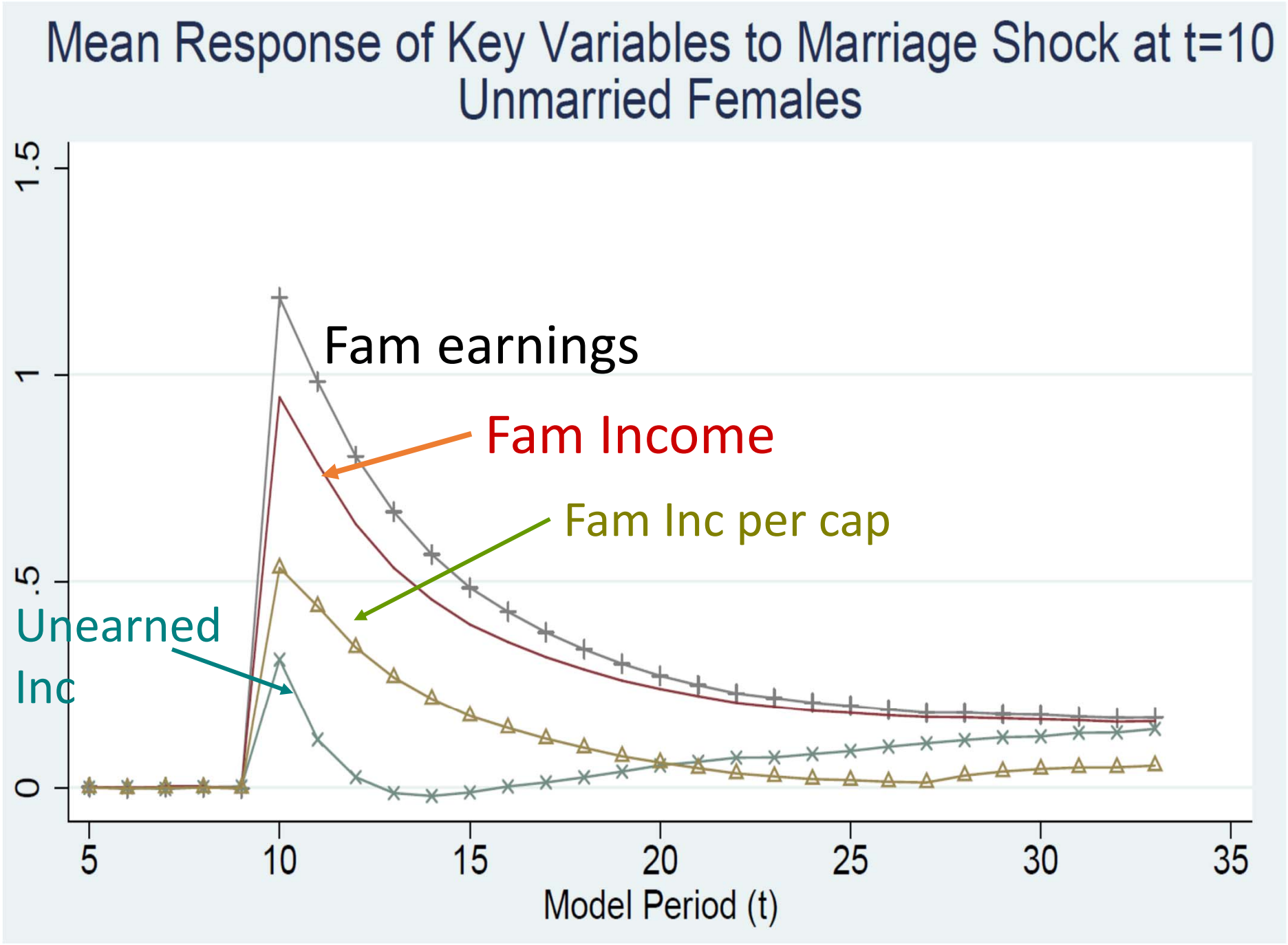
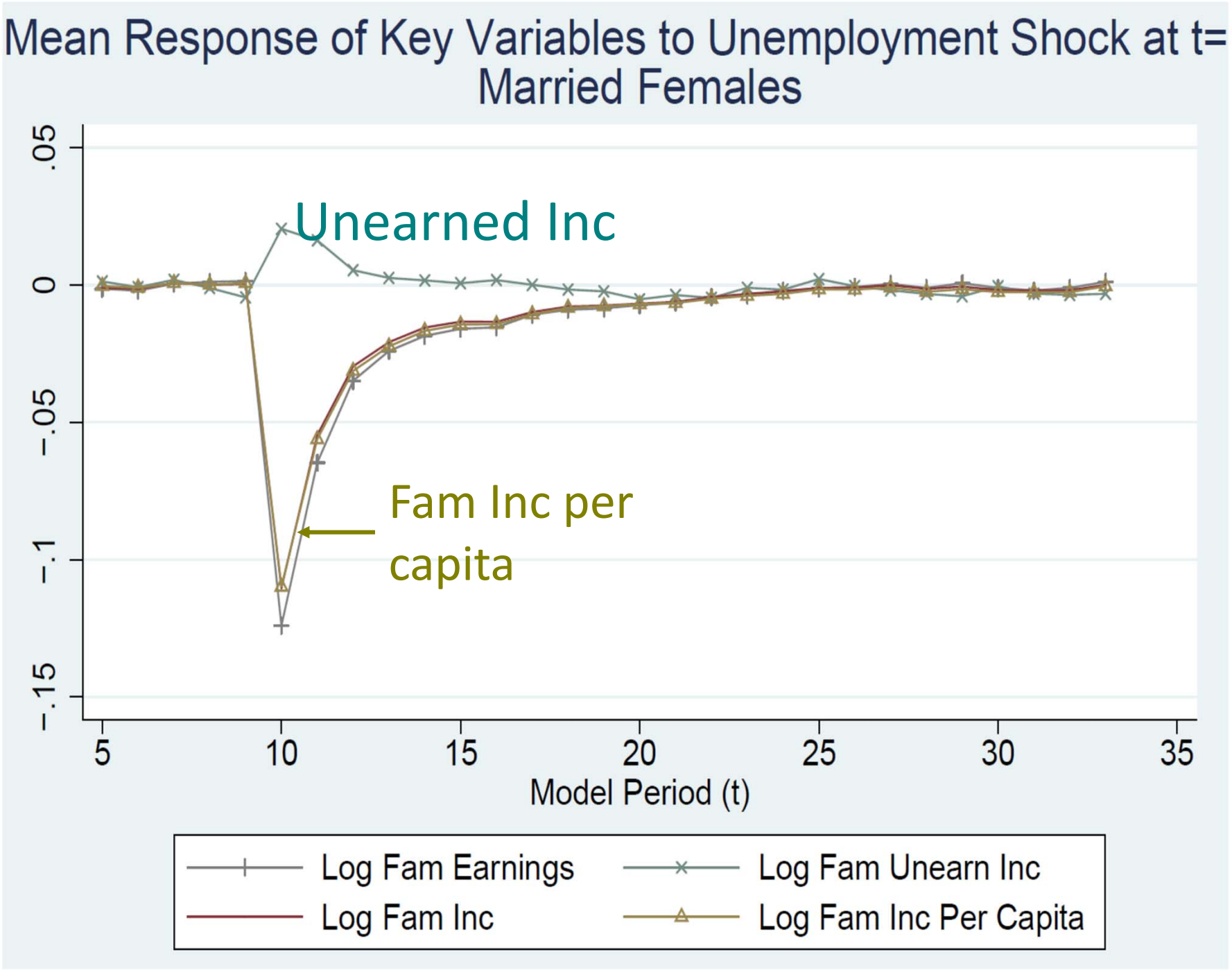
Model Period (t)


Mean Response of Key Variables to Marriage Shock at t=10
Unmarried Females
1.5
1
.5
0
Fam earnings
Fam Income
Fam Inc per cap
Unearned
Inc
5
10
15
20
25
30
35
Model Period (t)

Response to Unemployment and Wage Shocks


Mean Response of Key Variables to Unemployment Shock at t=10
Married Females
Unearned Inc
Fam Inc per capita
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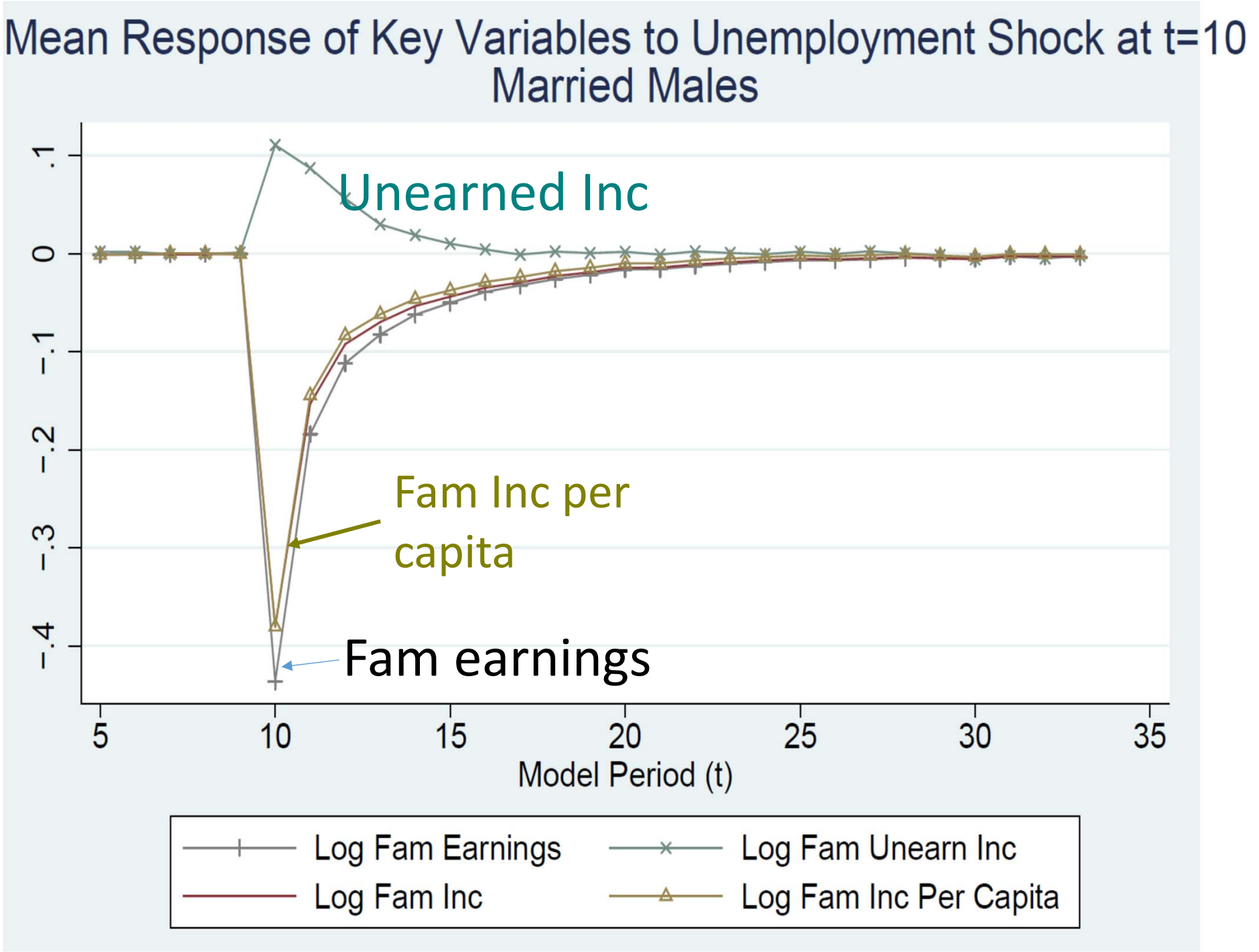
Model Period (t)
Log Fam Earnings
Log Fam Unearn Inc
Log Fam Inc
Log Fam Inc Per Capita


Mean Response of Key Variables to Unemployment Shock at t=10
Married Males
Unearned Inc
Fam Inc per capita
Fam earnings
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-.3
-.4
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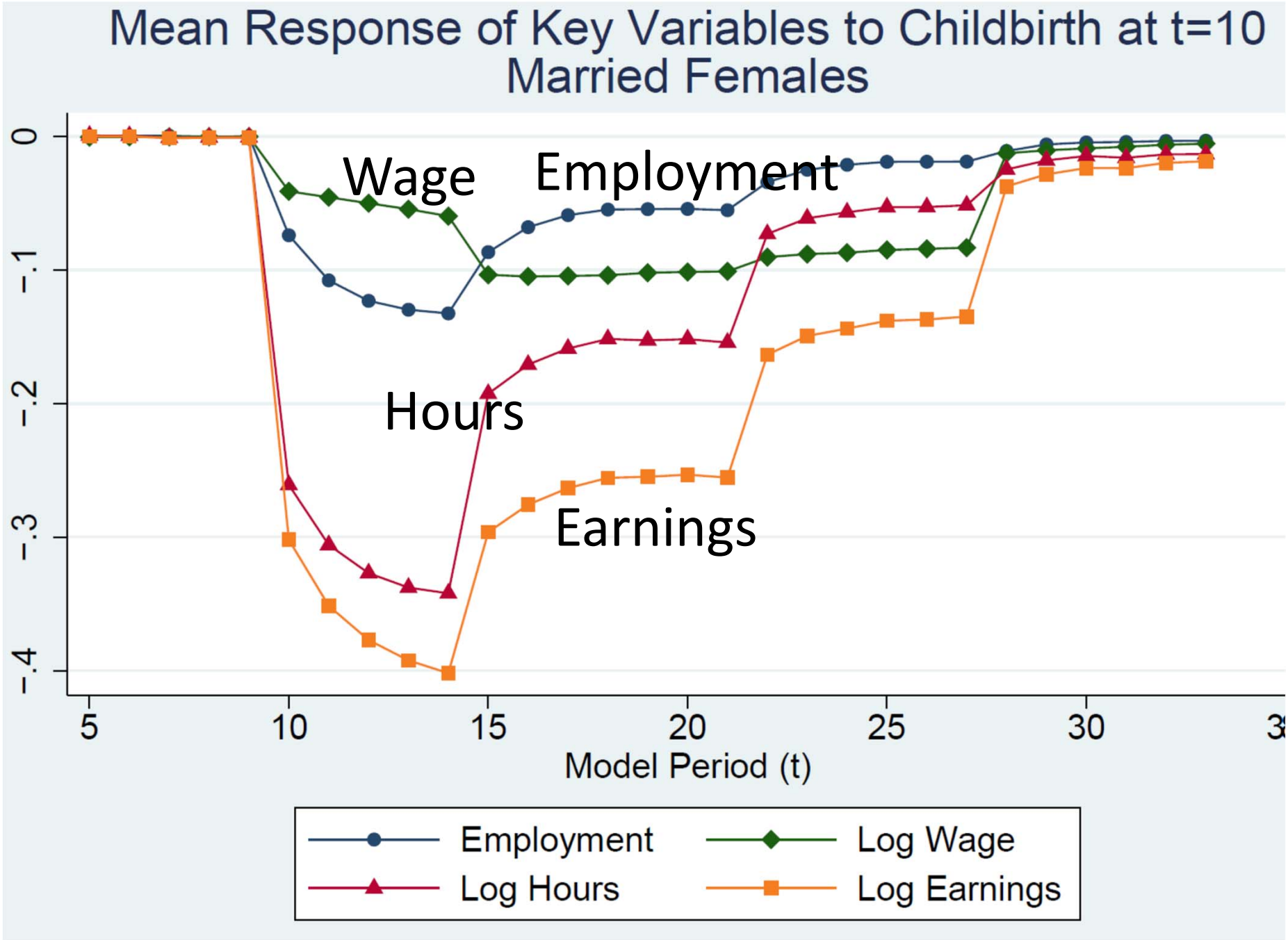
35
Model Period (t)
Log Fam Earnings
Log Fam Unearn Inc
Log Fam Inc
Log Fam Inc Per Capita


Mean Response of Key Variables to Childbirth at t=10
Married Females
Wage
Employment
Hours
Earnings
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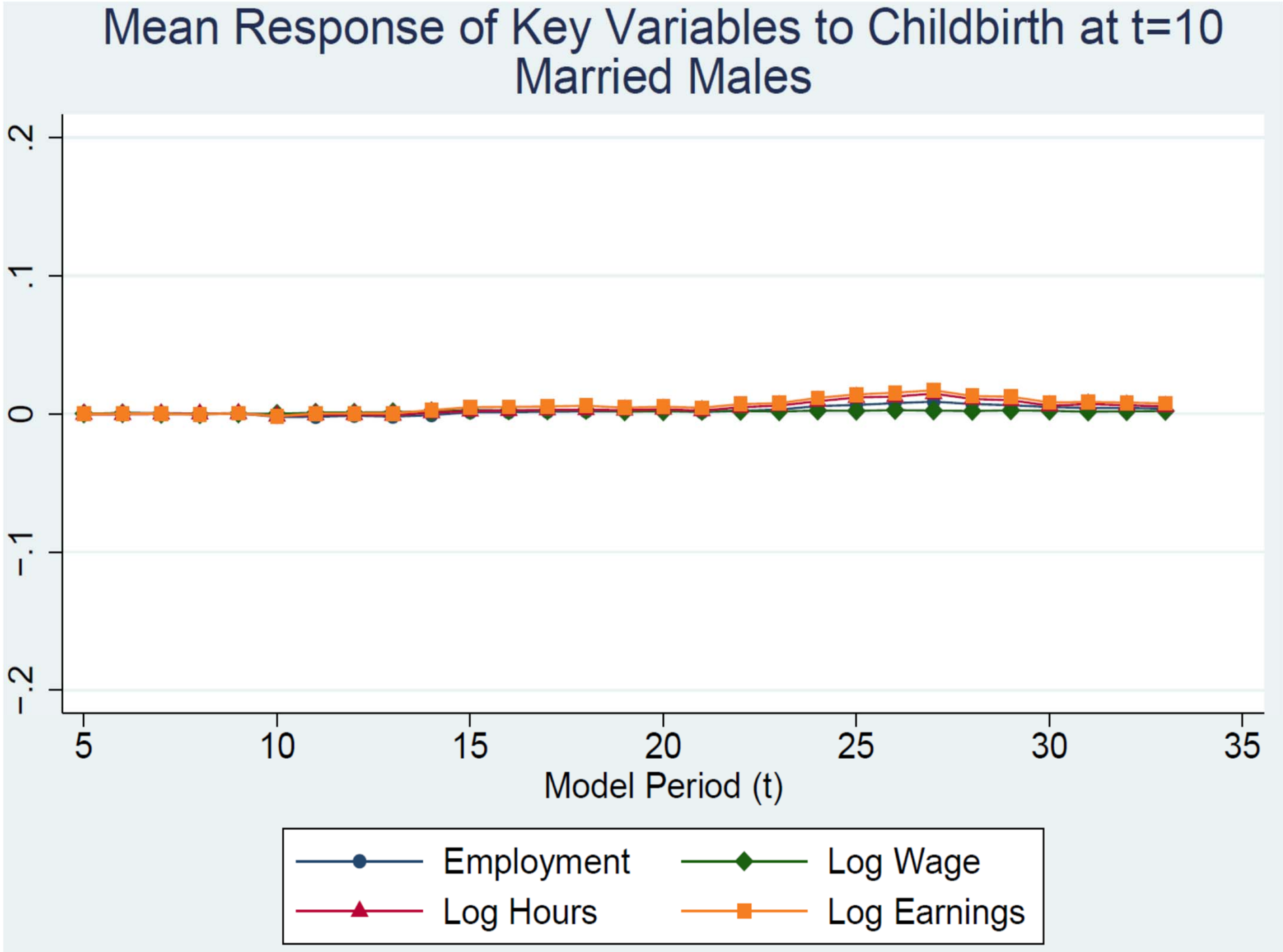
30
Model Period (t)
Employment
Log Wage
Log Hours
Log Earnings


Mean Response of Key Variables to Childbirth at t=10
Married Males
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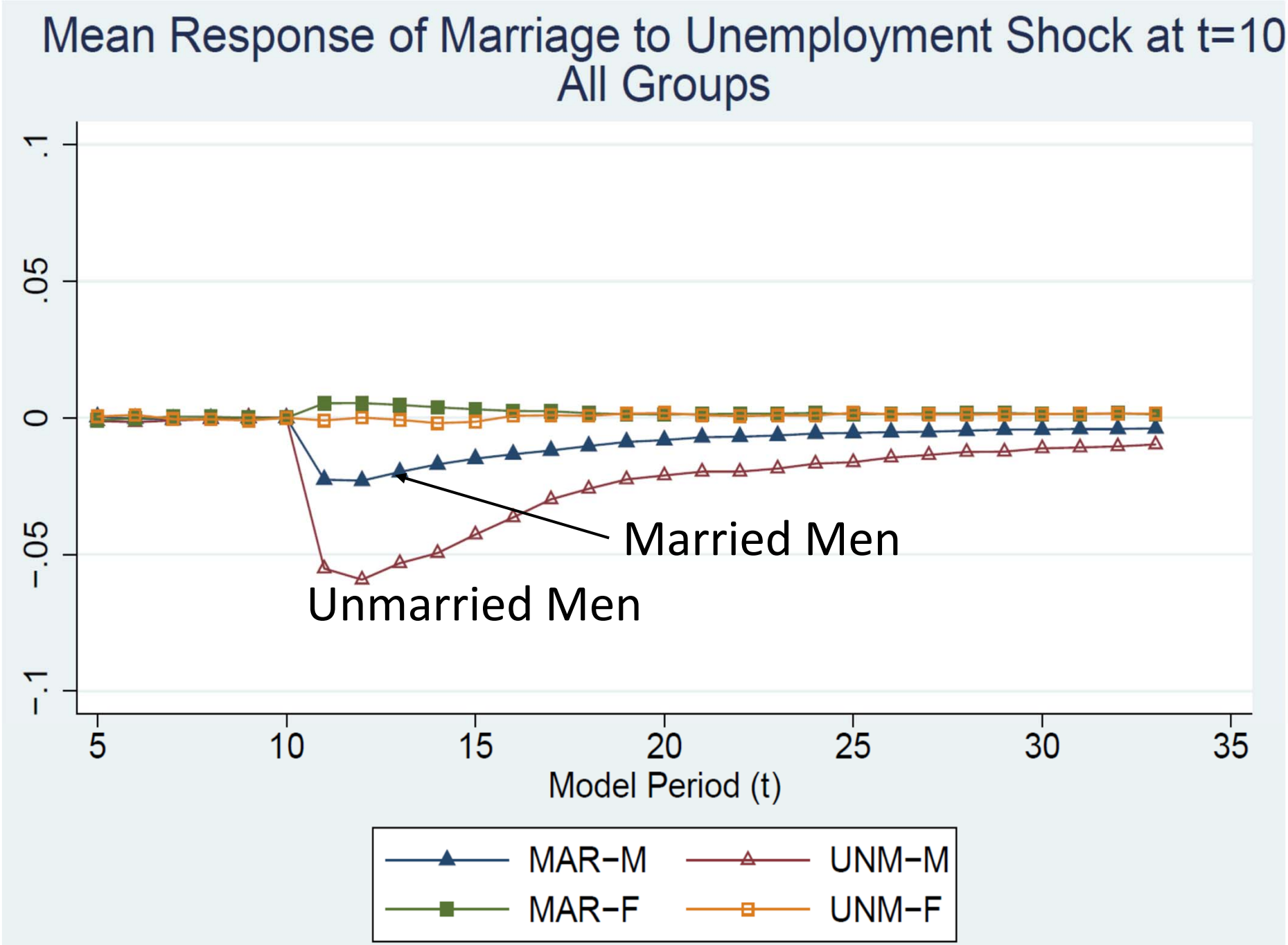
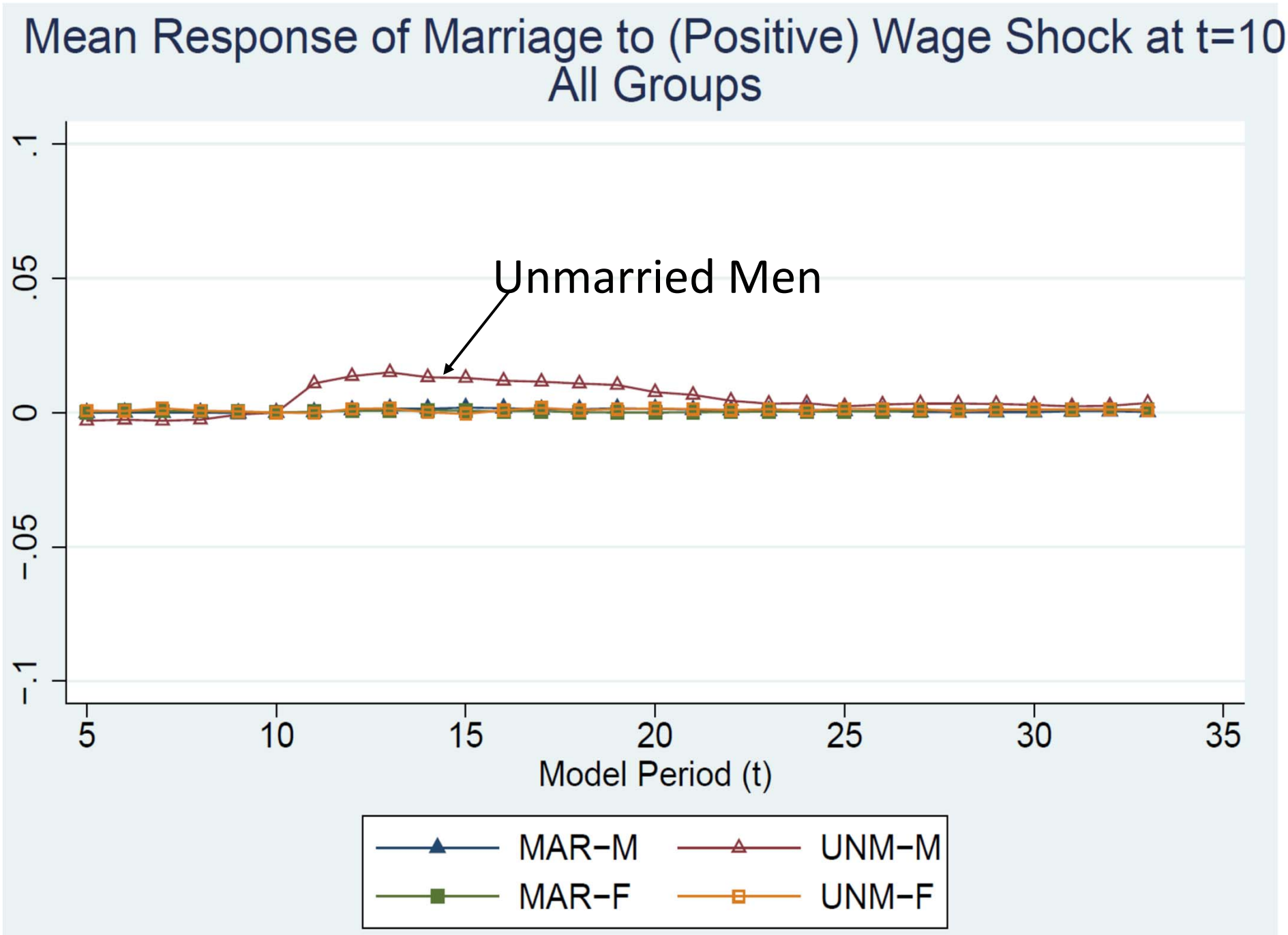
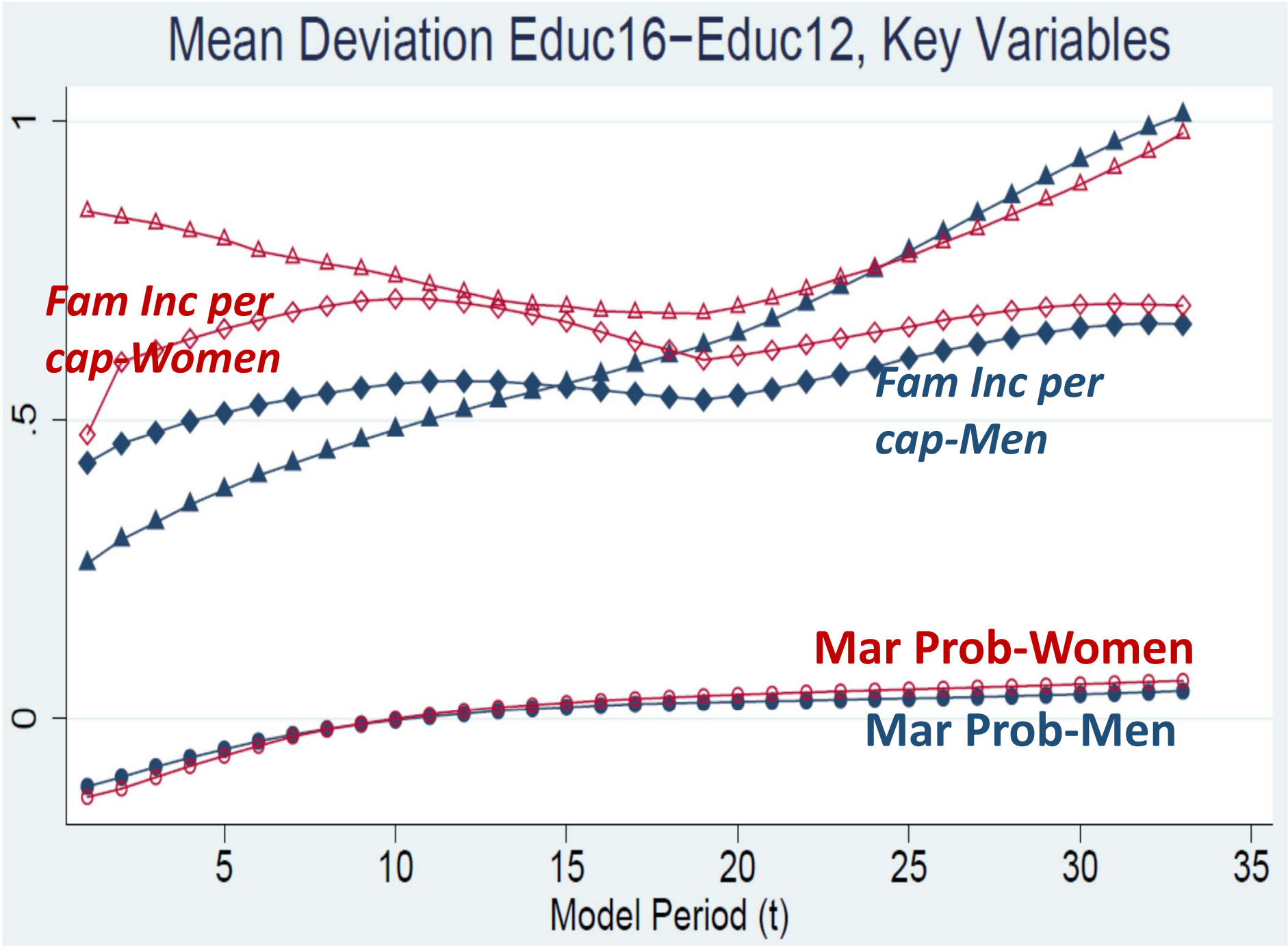
30
35
Model Period (t)
Employment
Log Wage
Log Hours
Log Earnings

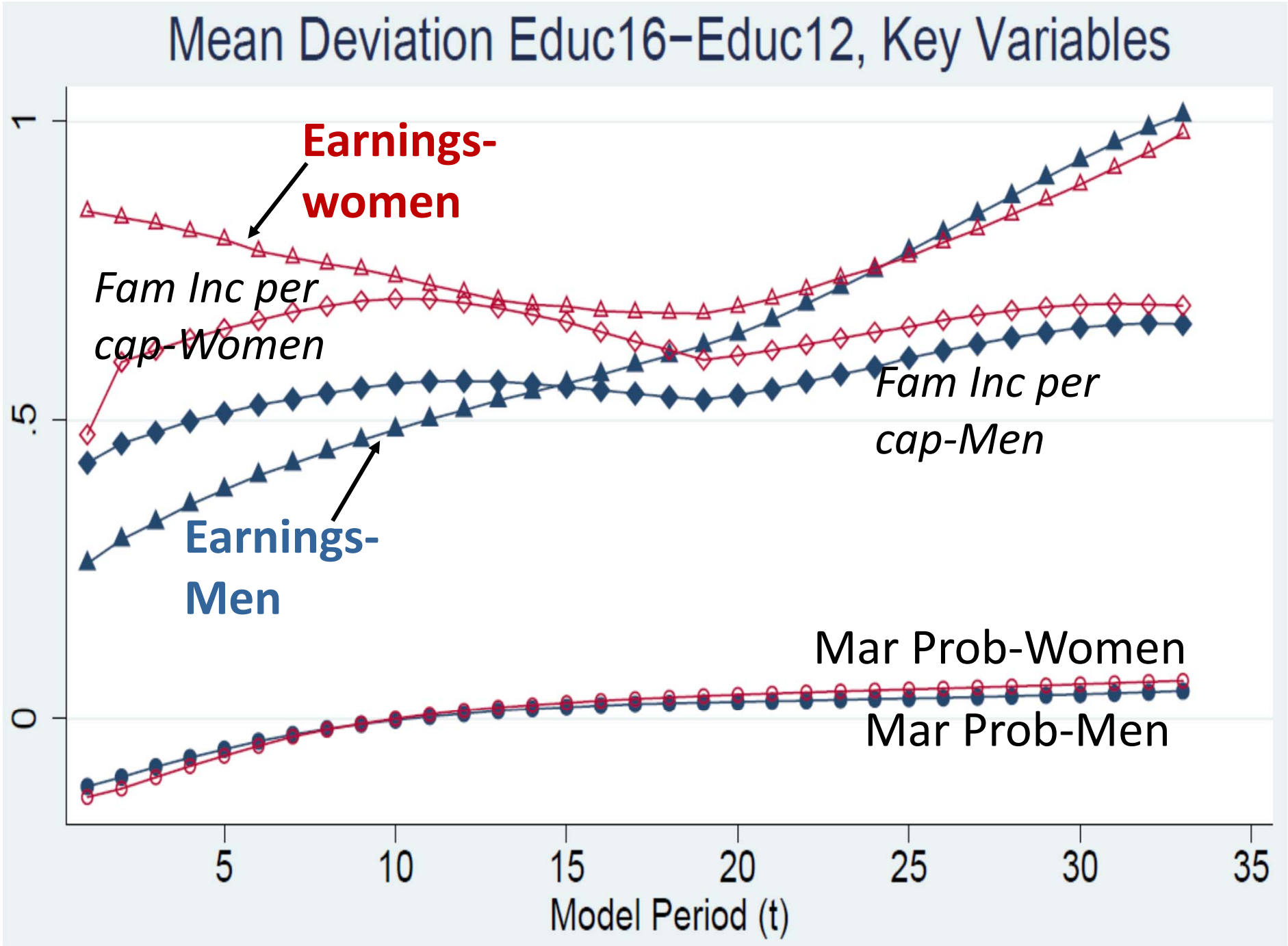
General Patterns

- Women Respond to Children. Men don't, except become more likely to marry. (not in slides)
- Marriage Shocks and Divorce Shocks Effect labor force behavior and family income of women more than men
- Behavior of single men and single women is much more similar
- Patterns reflect fact that men have higher wages and than women, earn a larger share of family income


Mean Response of Marriage to Unemployment Shock at t=10
All Groups
.1
.05
0
−.05
−.1
5
10
15
20
25
30
35
Model Period (t)
Married Men
Unmarried Men
MAR−M
UNM−M
MAR−F
UNM−F


Mean Response of Marriage to (Positive) Wage Shock at t=10
All Groups
Unmarried Men
.1
.05
0
−.05
−.1
5
10
15
20
25
30
35
Model Period (t)
MAR−M
UNM−M
MAR−F
UNM−F


Mean Deviation Educ16−Educ12, Key Variables
1
.5
0
Fam Inc per cap-Women
Fam Inc per cap-Men
Mar Prob-Women
Mar Prob-Men
5
10
15
20
25
30
35
Model Period (t)


Mean Deviation Educ16−Educ12, Key Variables
1
.5
0
Earnings-
women
Fam Inc per
cap-Women
Fam Inc per
cap-Men
Earnings-
Men
Mar Prob-Women
Mar Prob-Men
5
10
15
20
25
30
35
Model Period (t)

The Role of Sorting in the Return to Education and the Permanent Wage

Simulate "No Sorting" Counterfactual.

For women, Ed16-Ed12 differential in family Income per capita **0.25 smaller**

For men, about **0.10 smaller**

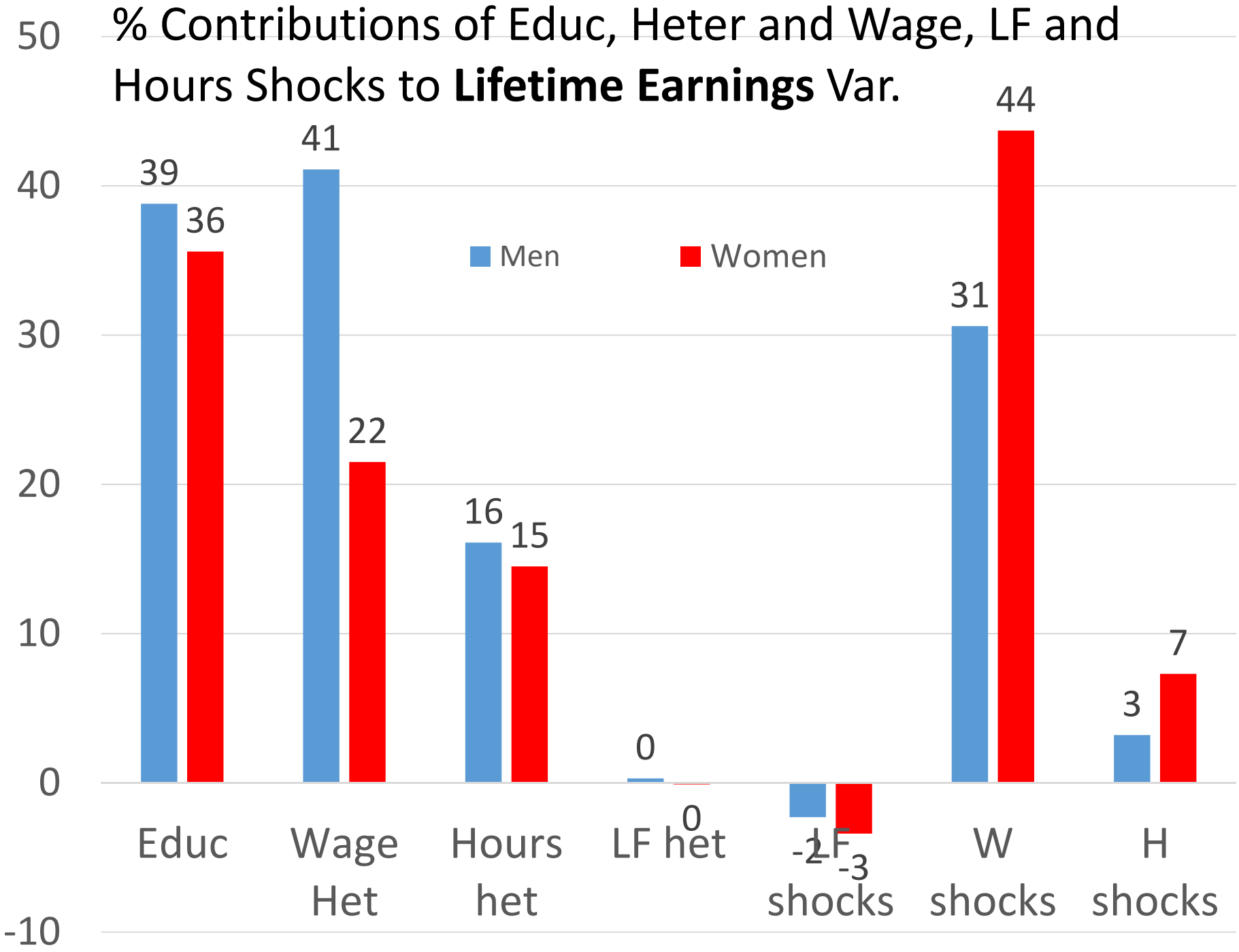
For women, the effect of 1SD increase in permanent wage component on fam. income per capita is **0.02 smaller**

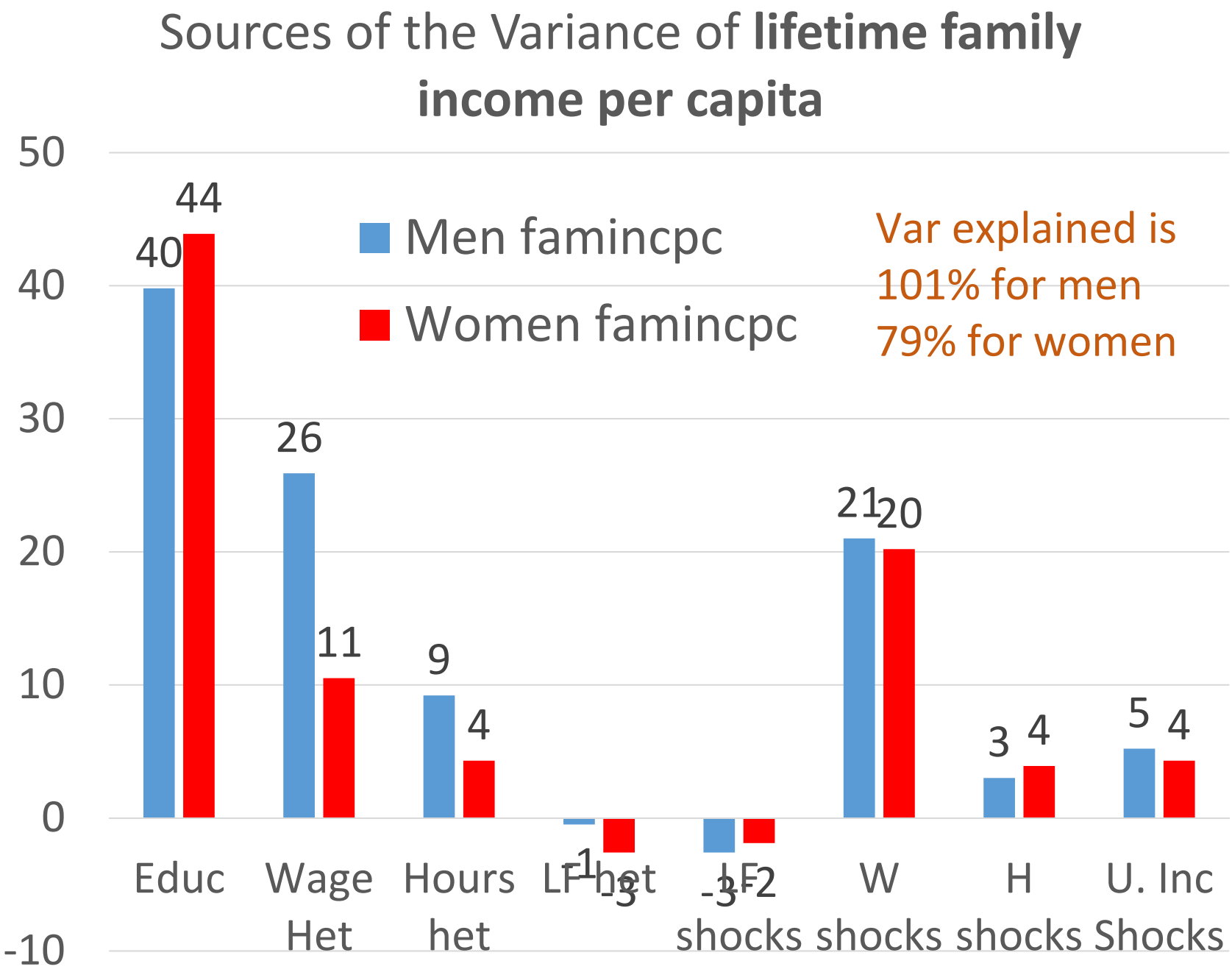
For men, about **0.017 smaller**

11.5 Variance Decompositions (preliminary)

- Simulate cross-sectional variance of the **lifetime sum** of various outcomes (levels, not logs):
- Repeat simulation shutting down variance of a particular random component (one at a time).
  - eg., set education to its mean.

- So far, have not separately measured contribution of
  - marriage and divorce shocks,
  - Marriage quality component
  - Random variation in spouse characteristics and spouse earnings.
  - Spouse earning shocks
- Doing so is not straightforward
- Contributions of person's own components need not sum to 100%.


% Contributions of Educ, Heter and Wage, LF and Hours Shocks to **Lifetime Earnings** Var.
50
40
30
20
10
0
-10
Men
Women
39
36
41
22
16
15
0
0
-2
-3
31
44
3
7
Educ
Wage Het
Hours het
LF het
LF shocks
W shocks
H shocks


Sources of the Variance of lifetime family income per capita
Men famincpc
Women famincpc
Var explained is
101% for men
79% for women
50
40
30
20
10
0
-10
40
44
26
11
9
4
-1
-3
-3
-2
21
20
3
4
5
4
Educ
Wage Het
Hours het
LF het
LF shocks
W shocks
H shocks
U. Inc Shocks

Why is do men's own characteristics and LM shocks account for more variation in Fam Inc per capita than women's own characteristics do?

- Randomness in marriage, sorting, and shocks to spouse's earnings more important for women.
  - Husbands account for larger share of var of family earnings
- Next Step—full decompositions accounting for randomness in marriage, spouse characteristics.

Research agenda on distribution of income and wellbeing

Extending Multivariate Statistical Approach

- Trends in male and female earnings, income inequality, consumption inequality
  - We have extended the data and are making key sorting, marriage, labor supply, and wage parameters depend on cohort. (not easy, because PSID is biennial after 1997).
  - Will build on prior work studying role of change in marriage and divorce, sorting, female labor supply, and wages in changes in inequality.
- Treat cohabitation as a separate state
- Better Estimation Strategy
  - Integrated, Simulation Based Estimation Strategy, as in ASV better for handling of heterogeneity that affects multiple outcome, initial conditions, labor market selection.
  - Tradeoff between richness of the model and what is computationally feasible.
  - We already tried for a while. Had a rough time!

Utility Based Model of Earnings, Marriage and Family Income

- Care about the distribution of wellbeing, not just income.
- Can easily include consumption and a cardinal utility function of consumption and leisure with preference parameters estimated externally
- But need a structural model to assess welfare consequences, design better social insurance, etc.
  - Utility function
  - Model of labor market with frictions
  - Marital sorting, marriage market frictions.

Low, Meghir, Pistaferri and Voena (2018) is closest to what I have in mind.

- Utility over consumption and work for women, consumption for men.
- Marriage market with frictions.
- Random matching within age groups.
- Decision to marry and to divorce fully modeled.
- Earnings process stripped down
  - Univariate earnings process for men.
  - Univariate wage process for women
  - No job loss, frictional unemployment

- Model was designed for a different purpose (welfare reform)
- But one could build on it to study effects of shocks on market resources and wellbeing
- And there is lots of recent work on the labor market and the marriage market to draw on!

Thank You!