Is Who You Work for as Important as What You Know? The Role of Firms in Labour Market Outcomes

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Economists' standard prescription for labor market success: go to school; work hard; acquire new skills...

But if you ask a typical person - getting a "good job" is the key to success.

Moreover, a lot of local development policies amount to trying to attract/retain "good jobs."

What do people mean by a "good job"? Do "good jobs" come from "good firms"?

Today I will argue that:

a) getting a "good job" is mainly about working at a "good firm"

b) firms offer systematic *wage premiums* (or discounts) relative to "the market"

c) variation in these premiums is large (and growing)

d) more productive firms pay higher wages (there also may be other sources of variation)

e) firm wage premiums help explain many aspects of labor market behavior and outcomes

Outline

I. Background

II. How much do firms matter in wage outcomes?

III. Interpretation: rent sharing, efficiency wages or ?

IV. What other features of the labor market can be explained by firm wage premiums?

- cyclical wage variation
- career progression
- gender gaps

V. What else *might* be explained?

I. Background

1a. In the standard model we use to study the labor market (CRS, integrated factor markets) firms don't matter

- firms face horizontal supply curves at the market wage; firm size is indeterminate

- working model for many questions: trade; immigration; SBTC; human capital; minimum wages; occupational choice; local labor markets

1b. The “modern” version:

- multiple skill groups; workers perfectly mobile across firms

- firms differ in various attributes (entrepreneurial skill, management practices, ...) so there is a lot of systematic heterogeneity

- But each worker is paid his/her “market wage”.
  - -No **special link** to current or past employers
  - -One good firm benefits all workers in the market
  - (it doesn’t matter if you actually work for Google)

2. What do we know from earlier work?

a. Research using *firm-level union contract* data

- rent sharing, pattern bargaining, slow adjustment

b. Research using panel data (PSID, NLSY...)

- big "job component" of wages

c. Research on displaced workers

- job losers have large, persistent wage losses

d. Research on firm-level data sets (LRD...)

- variance in TFP is huge (var=1) and persistent

e. Theoretical research on “frictional markets”

- Burdett Mortensen: firms set wages to balance turnover costs and wage costs. High/low wages equally profitable

- DMP: firms post job openings. Workers have different “match productivities” (each firm has 1 job in canonical version)

extensions

- Cahuc et al: firms respond to outside offers
- Stole and Zwiebul: individual bargaining

f. Modern rent-sharing literature

- worker-firm data, allows controls for worker heterogeneity

- very important, since higher skilled workers will lead to higher value-added/worker (VA/L)

- typical elasticities w.r.t VA/L: 0.05 to 0.10

- CCHK "replication": look at wage changes of job stayers in Portugal (QP data) as firm becomes more/less profitable. Elasticities in same range

Table 1: Summary of Estimated Rent Sharing Elasticities from the Recent
(Preferred specification, adjusted to TFP basis)

Study and country/industry	Estimated Elasticity	Std. Error	
Group 3: Firm-level profit measure, individual-specific wage			
9. Margolis and Salvanes (2001), French manufacturing	0.062	(0.041)	
9. Margolis and Salvanes (2001), Norwegian manufacturing	0.024	(0.006)	
10. Arai (2003), Sweden	0.020	(0.004)	
11. Guiso, Pistaferri, Schivardi (2005), Italy	0.069	(0.025)	
12. Fakhfakh and FitzRoy (2004), French manufacturing	0.120	(0.045)	
13. Du Caju, Rycx, Tojerow (2011), Belgium	0.080	(0.010)	
14. Martins (2009), Portuguese manufacturing	0.039	(0.021)	
15. Guertzgen (2009), Germany	0.048	(0.002)	Mean=0.08
16. Cardoso and Portela (2009), Portugal	0.092	(0.045)	
17. Arai and Hayman (2009), Sweden	0.068	(0.002)	
18. Card, Devicienti, Maida (2014), Italy (Veneto region)	0.073	(0.031)	
19. Carlsson, Messina, and Skans (2014), Swedish mfg.	0.149	(0.057)	
20. Card, Cardoso, Kline (2016), Portugal, between firm	0.156	(0.006)	
20. Card, Cardoso, Kline (2016), Portugal, within-job	0.049	(0.007)	
21. Bagger et al. (2014), Danish manufacturing	0.090	(0.020)	

Table 2: Cross-Sectional and Within-Job Models of Rent Sharing for Portuguese Male Workers

	BASIC (1)	+Major Industry (2)	+Detailed Industry (3)
B. Within-Job Models (Change in Wages from 2005 to 2009 for stayers)			
4. OLS: rent measure = change in log value added per worker from 2005 to 2009	0.041	0.039	0.034
	(0.006)	(0.005)	(0.003)
5. OLS: rent measure = change in log sales per worker from 2005 to 2009	0.015	0.014	0.013
	(0.005)	(0.004)	(0.003)
6. IV: rent measure = change in log value added per worker from 2005 to 2009. Instrument = change in log sales per worker, 2004 to 2010	0.061	0.059	0.056
	(0.018)	(0.017)	(0.016)
First stage coefficient	0.221	0.217	0.209
	[t=11.82]	[t=13.98]	[t=18.63

3. Abowd Kramarz Margolis (AKM)

log(wage) = **person effect** (skills, ambition etc)
+ **firm effect** (firm-specific premium)
+ Xβ (age/time trends/returns to schooling)
+ error

error = job-match premium + transitory shocks
(firm-wide or worker-specific)

note: job-match ⇒ heterogeneous treatment effect

Reality check - do firms really "post" different wages?

How do firms hire? Hall-Krueger survey

Q1: 'take it or leave it' offer or some bargaining?

Q2: knew pay exactly at time of 1st interview

26% pay known/no bargaining

37% pay uncertain/no bargaining

25% pay uncertain/bargaining

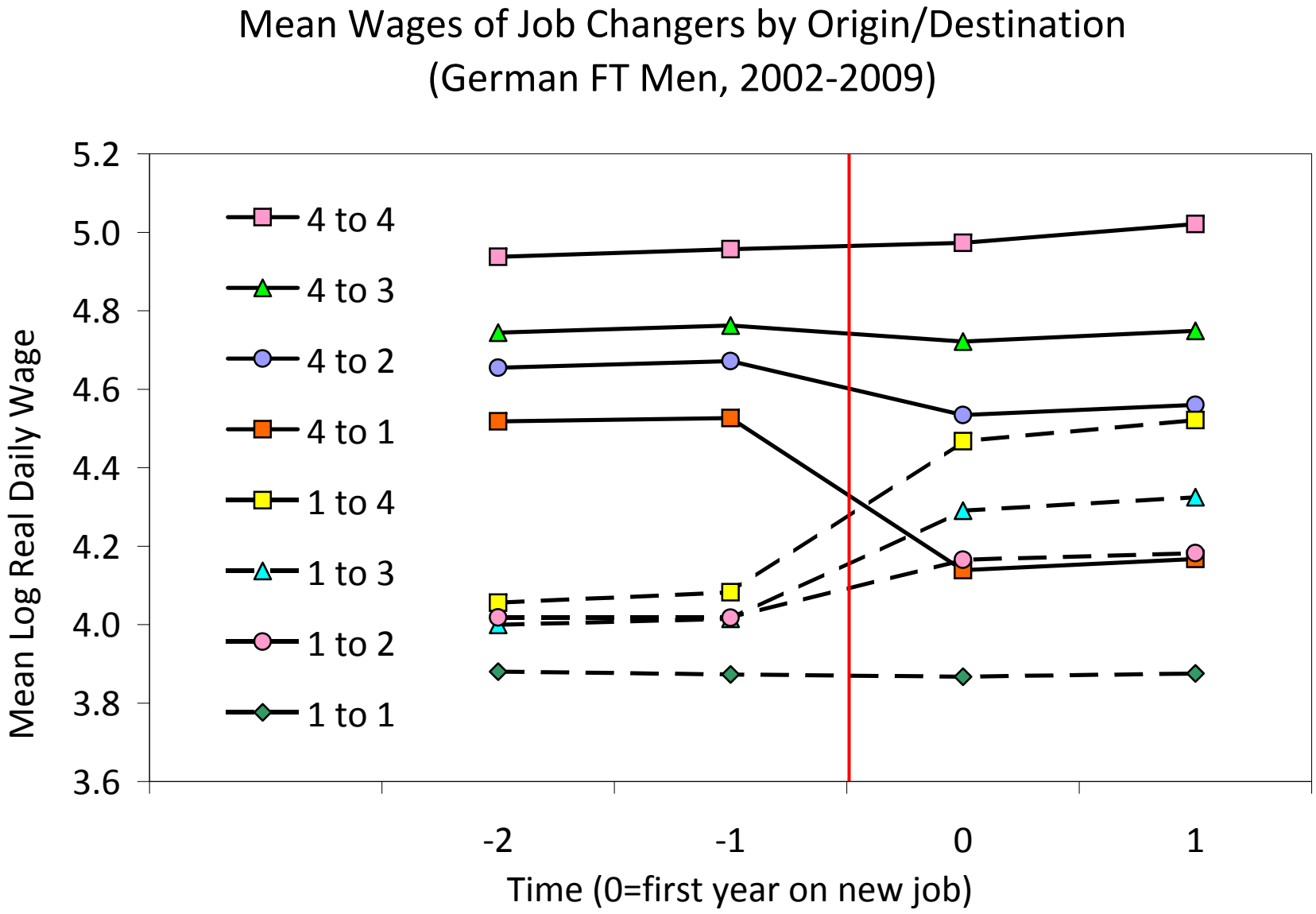
Other evidence:

- van Ours and Ridder (inventory of applications)
- job fairs
- network lit: *workers know where the good jobs are*

Non-parametric evidence of “firm effects”

CHK event study design:

- classify jobs in a year by average coworker wage (into 4 quartiles)
- select workers who change establishments; classify changes by quartile of co-worker wages in last year of old job/first year of new job
- focus on workers with 2+ years pre/post


Mean Wages of Job Changers by Origin/Destination
(German FT Men, 2002-2009)
Mean Log Real Daily Wage
5.2
5.0
4.8
4.6
4.4
4.2
4.0
3.8
3.6
4 to 4
4 to 3
4 to 2
4 to 1
1 to 4
1 to 3
1 to 2
1 to 1
-2
-1
0
1
Time (0=first year on new job)

Mean Wages of Job Changers by Origin/Destination Group (Males, Portugal)

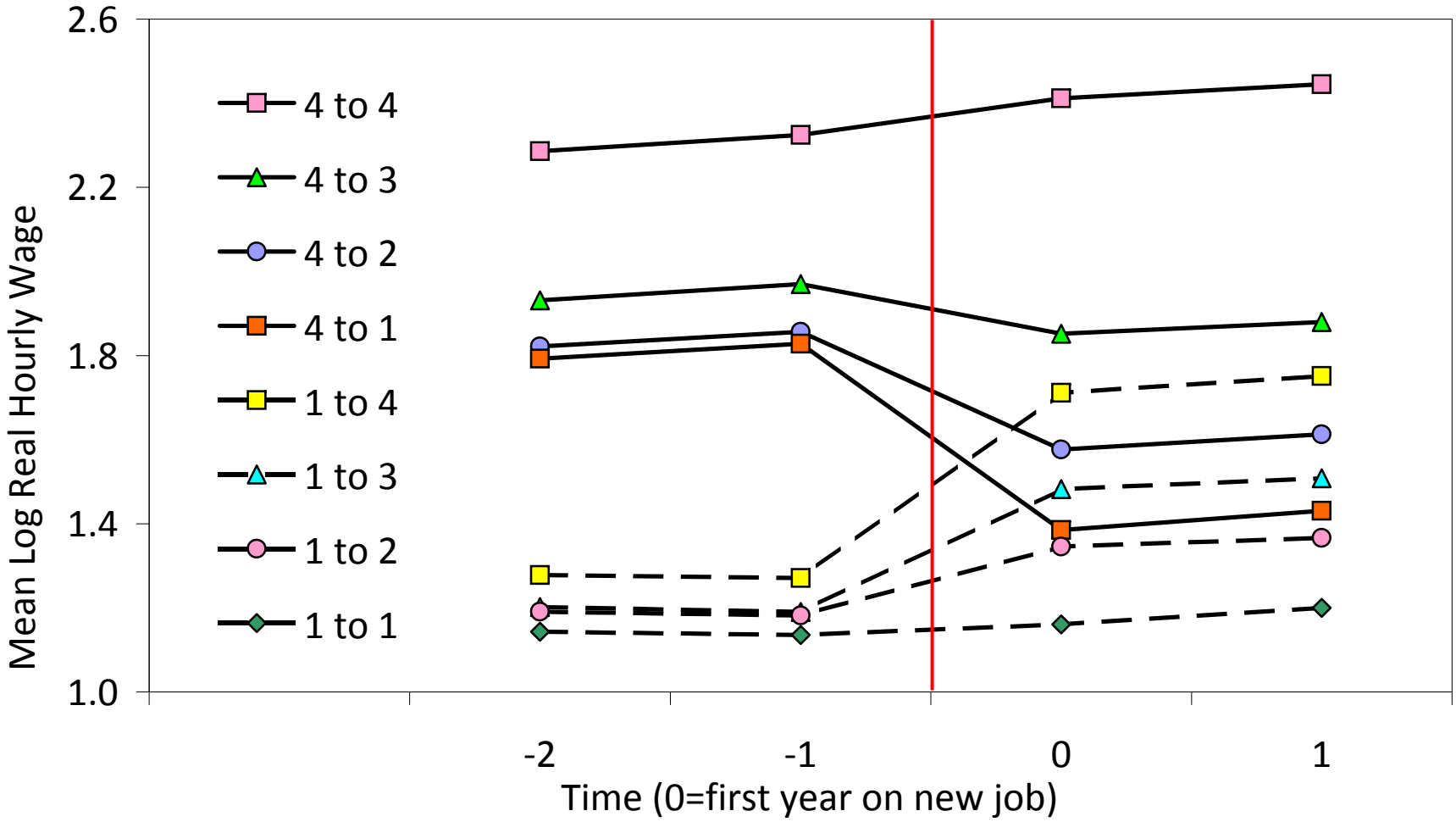
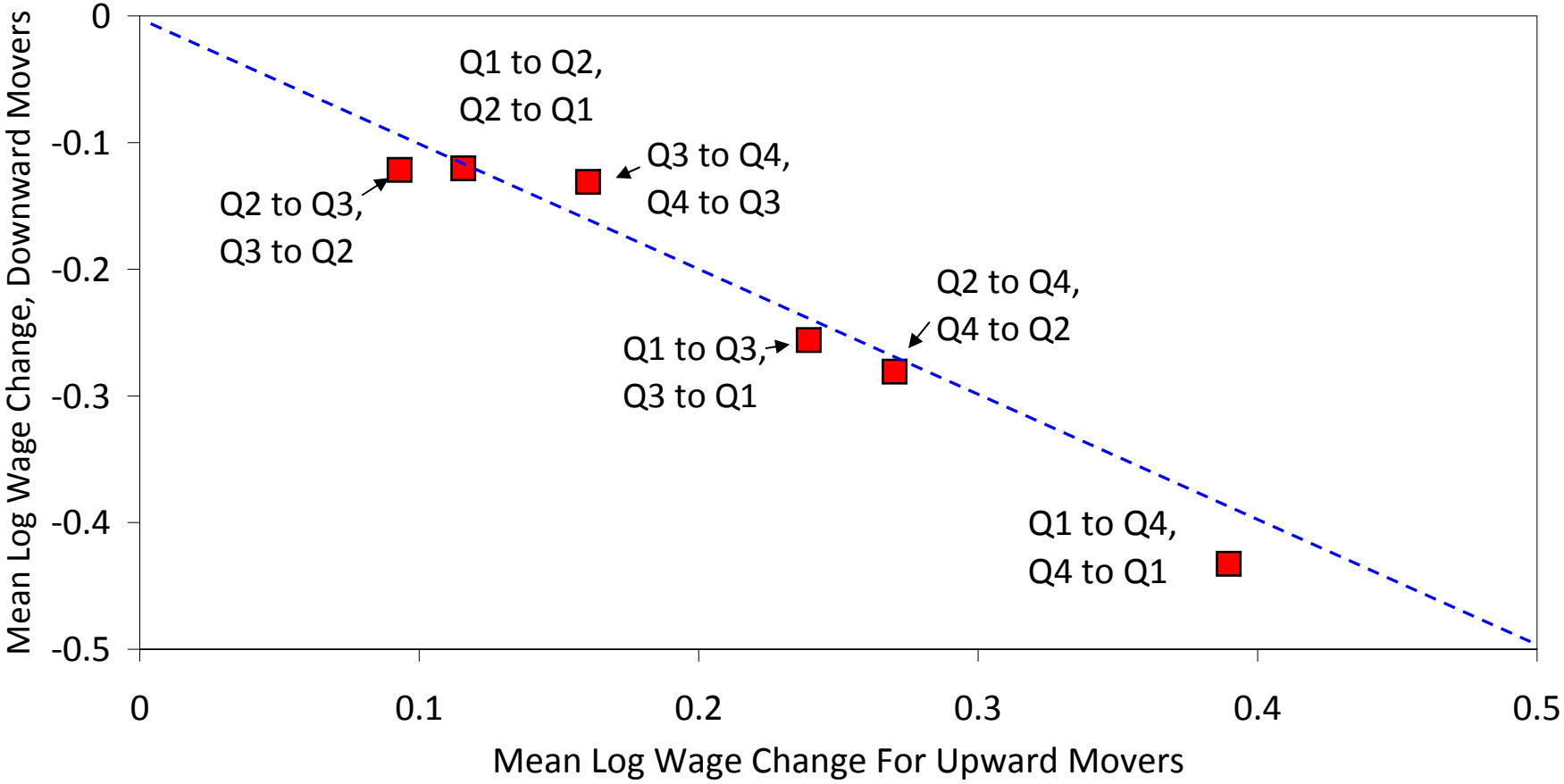


Figure 5a: Test for Symmetry of Regression-Adjusted Wage Changes of Portuguese Male Movers Across Coworker Wage Quartiles



Note: Figure plots regression adjusted mean wage changes over 4 year interval for job changers who move across coworker wage quartile groups indicated. Dashed line represents symmetric changes for upward and downward movers. Source: Card, Cardoso and Kline (2016, Appendix Figure B3).

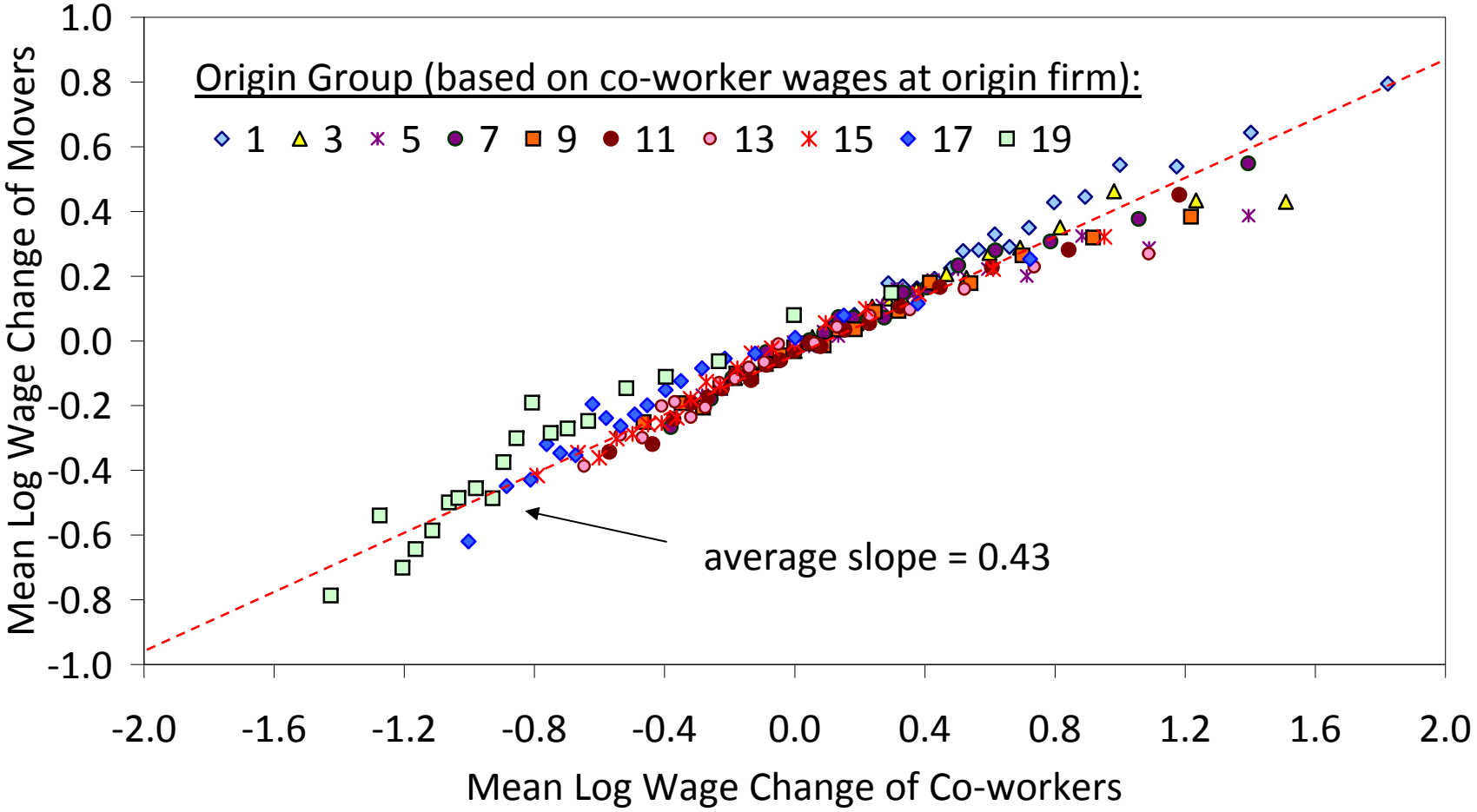
Closer examination of the wage changes of job changers (Portuguese male job changers)

- classify jobs into 20 groups using coworker wages
- for each of 400 origin/destination cells calculate
  - change in mean log co-worker wage = $\Delta w^{coworker}$
  - change in mean wages of movers = Δw

- plot: Δw vs. $\Delta w^{coworker}$

- looks like $E[\Delta w | \Delta w^{coworker}] = 0.4\, \Delta w^{coworker}$

Wage Changes of Movers vs. Changes of Co-workers
(Classifying origin/destination firms into 20 bins)



Take-aways:

1) wages rise/fall when you join a firm with higher/lower-paid coworkers
2) large gaps - lots of 40% wage losses/gains
3) no average mobility premium
4) approximately symmetric gains/losses
   (⇒ not much sorting on match component)
5) no clear trends in pre/post-transition wages
6) upwardly mobile workers have higher wages given their origin quartile
   (⇒ sorting on 'permanent' ability component)

Applying AKM framework: Germany, Portugal, Brazil

Table 3: Summary of Estimated Models for Male and Female Workers

	Males	Females	German Men	Brazil - WM
Summary of Parameter Estimates: AKM Model				
Std. dev. of pers. effects (person-yr obs.)	0.420	0.400	0.357	0.448
Std. dev. of firm effects (person-yr obs.)	0.247	0.213	0.230	0.304
Std. dev. of Xb (across person-yr obs.)	0.069	0.059	0.084	0.222
Correlation of person/firm effects	0.167	0.152	0.249	0.239
Adjusted R-squared	0.934	0.940	0.927	0.899
Correlation male / female firm effects	**0.590**			
Comparison job-match effects model:				
Adjusted R-squared	0.946	0.951	0.949	0.928
Std. deviation match effect in AKM model	0.062	0.054	0.075	0.120
Share of variance of log wages due to:				
person effects	57.6	61.0	51.2	44.5
firm effects	19.9	17.2	21.2	20.5
covariance of person/firm effects	11.4	9.9	16.4	14.4
Xb and associated covariances	6.2	7.5	5.2	13.1
residual	4.9	4.4	5.9	7.5

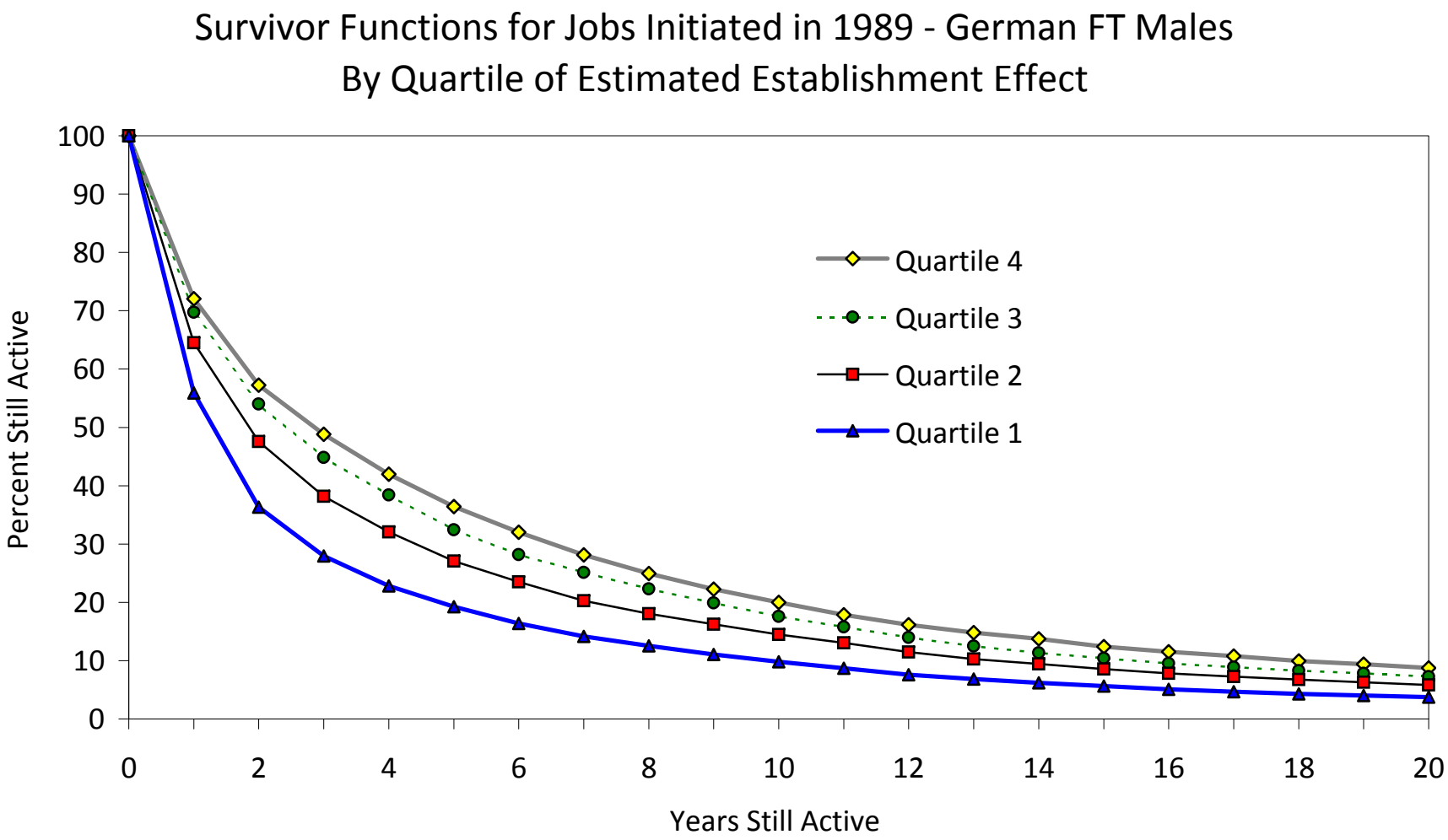
III. Interpretation

- high-wage firms survive longer
  (so they are more profitable, despite higher wages)

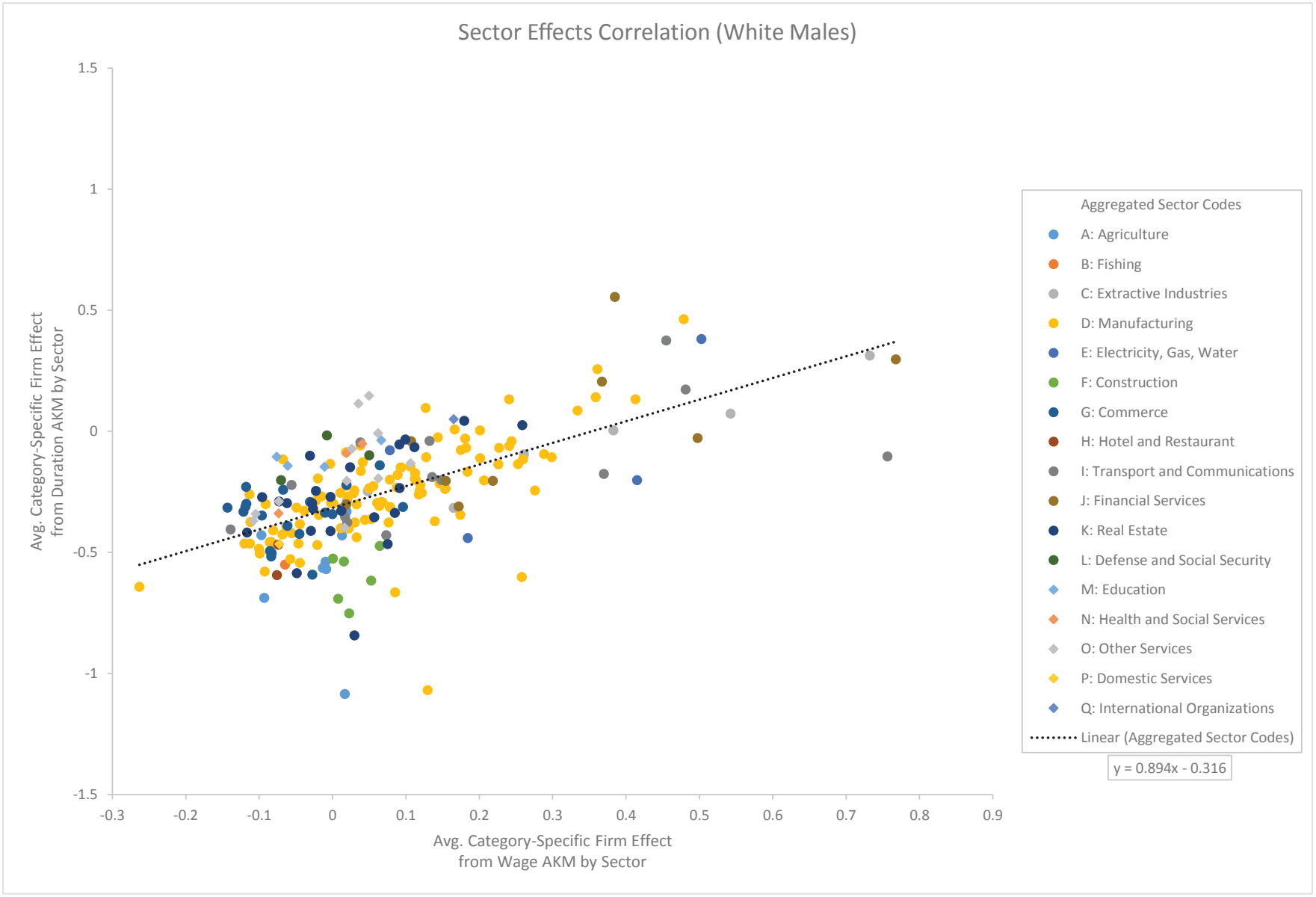
- Fr/Italy/PT: premiums correlated with profits

- jobs at high-wage firms survive longer
  (wage premium is not just an offset for hours/effort)

- modest widening of premiums over time
  BUT: new firms (post-1996) have big lower tail
  ⇒ emergence of low wage firms that specialize
  in hiring low-wage workers



Notes: figure shows fraction of jobs held by full time male workers in IEB that were initiated in 1989 and are still present after number of years indicated by x-axis. Establishments are divided into quartiles based on their estimated establishment effects from an AKM model fit to data from 1985 to 1991.


Sector Effects Correlation (White Males)
Avg. Category-Specific Firm Effect from Duration AKM by Sector
Avg. Category-Specific Firm Effect from Wage AKM by Sector
1.5
1
0.5
0
-0.5
-1
-1.5
-0.3
-0.2
-0.1
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
Aggregated Sector Codes
A: Agriculture
B: Fishing
C: Extractive Industries
D: Manufacturing
E: Electricity, Gas, Water
F: Construction
G: Commerce
H: Hotel and Restaurant
I: Transport and Communications
J: Financial Services
K: Real Estate
L: Defense and Social Security
M: Education
N: Health and Social Services
O: Other Services
P: Domestic Services
Q: International Organizations
Linear (Aggregated Sector Codes)
y = 0.894x - 0.316

a. Is the wage premium simply rent-sharing?

- wide variation across firms in profit/worker (TFP, ...)

- CCHK: relate components of AKM to log(VA/L)
- person effect correlated with VA/L – sorting
- firm effect correlated with VA/L – rent sharing (or?)
- ALSO: check that firm effects for different groups have similar elasticity

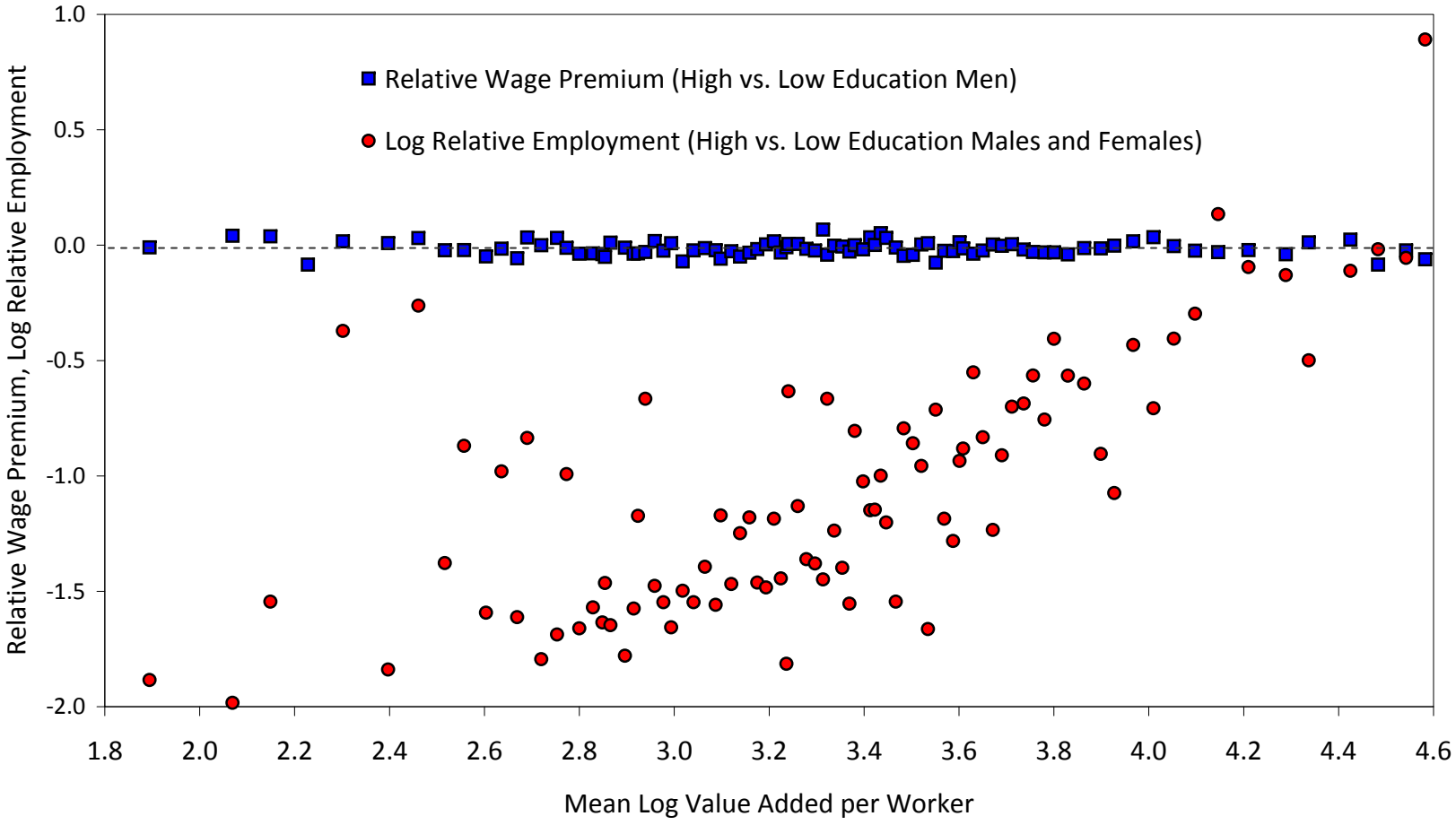
Table 4: Relationship Between Components of Wages and Mean Log VA/N

	BASIC (1)	+Major Industry (2)	+Detailed Industry (3)
A. Combined Sample (n=2,252,436 person year observations at 41,120 firms)			
1. Log Hourly Wage	0.250	0.222	0.187
	(0.018)	(0.016)	(0.012)
2. Estimated Person Effect	0.107	0.093	0.074
	(0.010)	(0.009)	(0.006)
3. Estimated Firm Effect	0.137	0.123	0.107
	(0.011)	(0.009)	(0.008)
4. Estimated Covariate Index	0.001	0.001	0.001
	(0.000)	(0.000)	(0.000)

Table 4: Relationship Between Components of Wages and Mean Log VA/N

	BASIC (1)	+Major Industry (2)	+Detailed Industry (3)
B. Less-Educated Workers (n=1,674,676 person year observations at 36,179 firms)			
5. Log Hourly Wage	0.239	0.211	0.181
	(0.017)	(0.016)	(0.011)
6. Estimated Person Effect	0.089	0.072	0.069
	(0.009)	(0.009)	(0.005)
7. Estimated Firm Effect	0.144	0.133	0.107
	(0.015)	(0.013)	(0.008)
C. More-Educated Workers (n=577,760 person year observations at 17,615 firms)			
9. Log Hourly Wage	0.275	0.247	0.196
	(0.024)	(0.020)	(0.017)
10. Estimated Person Effect	0.137	0.130	0.094
	(0.016)	(0.013)	(0.009)
11. Estimated Firm Effect	0.131	0.113	0.099
	(0.012)	(0.009)	(0.010)

Figure 8: Relative Wage Premium and Relative Employment of High vs. Low Education Workers



Note: Firms are divided into 100 cells based on mean log value added per worker, 2005-2009, with equal numbers of person-year observations per cell.

IV. What features of the labor market can be explained by firm wage premiums?

1. Rise in wage inequality (CHK, Germany)

- FT male workers (main job each year) 1985-2009
- compare model in 4 periods:

    1985-1991 - before reunification

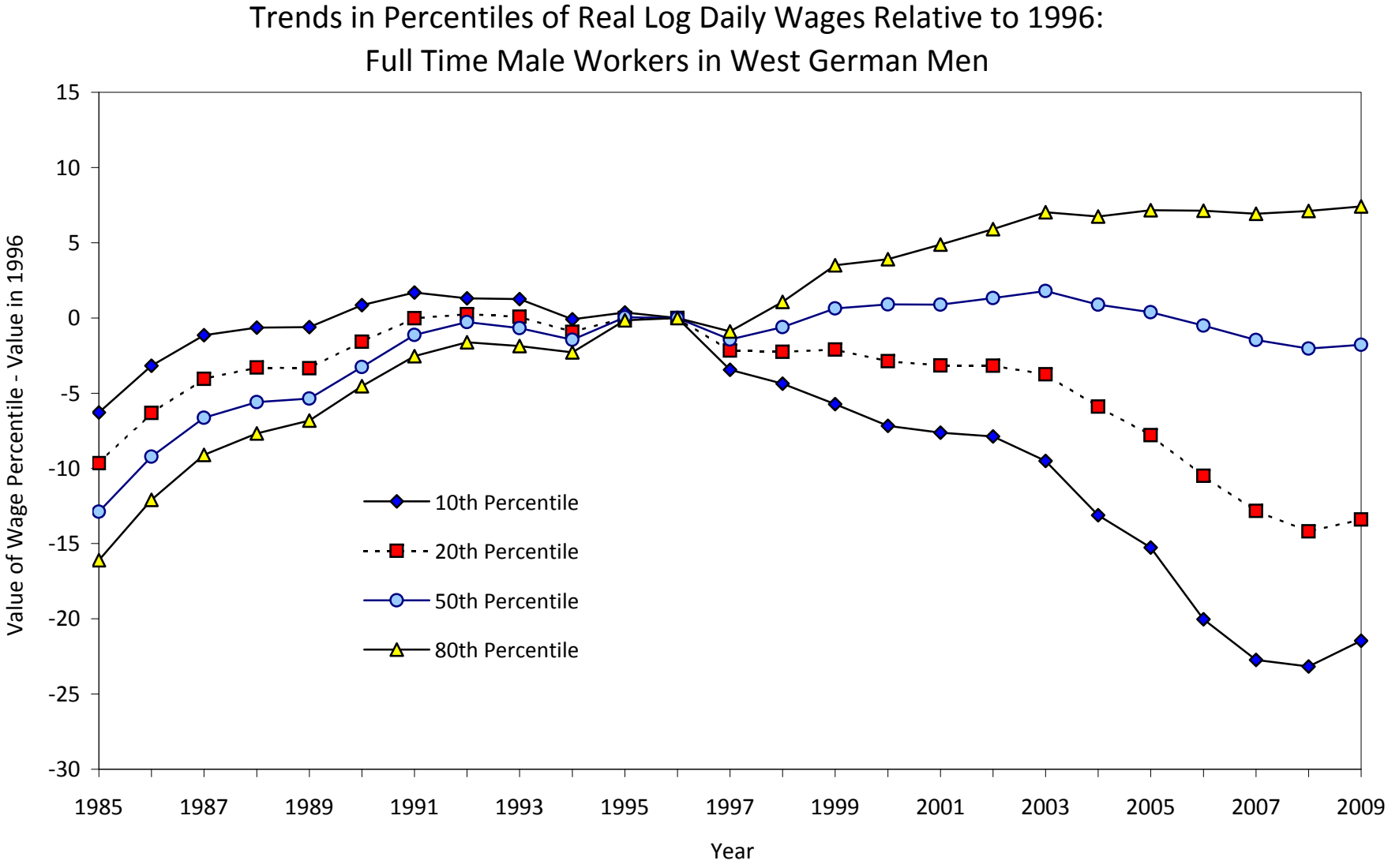
    1990-1996 - reunification, E-W migration

    1996-2002 - the "sick man of Europe"

    2002-2009 - the German economic miracle

$V(\log w_{ijt}) =$ **V(person) + V(firm) + 2cov(p,f)**

+ other components


Trends in Percentiles of Real Log Daily Wages Relative to 1996:
Full Time Male Workers in West German Men
Value of Wage Percentile - Value in 1996
15
10
5
0
-5
-10
-15
-20
-25
-30
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009
Year
10th Percentile
20th Percentile
50th Percentile
80th Percentile

Decompositions of Rise in Variance for Alternative Samples

	FT Men	FT Males w/ Apprenticeship	FT Women
1. Rise in Variance 1985-91 to 2002-09	0.112	0.043	0.095
2. Rise in Var(Person Effects)	0.043	0.024	0.048
(percent of total)	(39)	(55)	(50)
3. Rise in Var(Estab. Effects)	0.027	0.018	0.023
(percent of total)	(25)	(42)	(25)
3. Rise in 2×Cov(Pers,Estab)	0.038	0.014	0.017
(percent of total)	(34)	(32)	(18)

2. Gender gap

CCK- Portugal (QP = annual census of all jobs)

fit AKM models separately by gender

<u>counterfactuals:</u>

- raw MF wage gap (hourly wages) = 0.23
- give F's the male firm effects = 0.22
- give F's the male firm distribution = 0.18

20-25% of average gender gap is due to firm distribution

3. cyclical wage variation

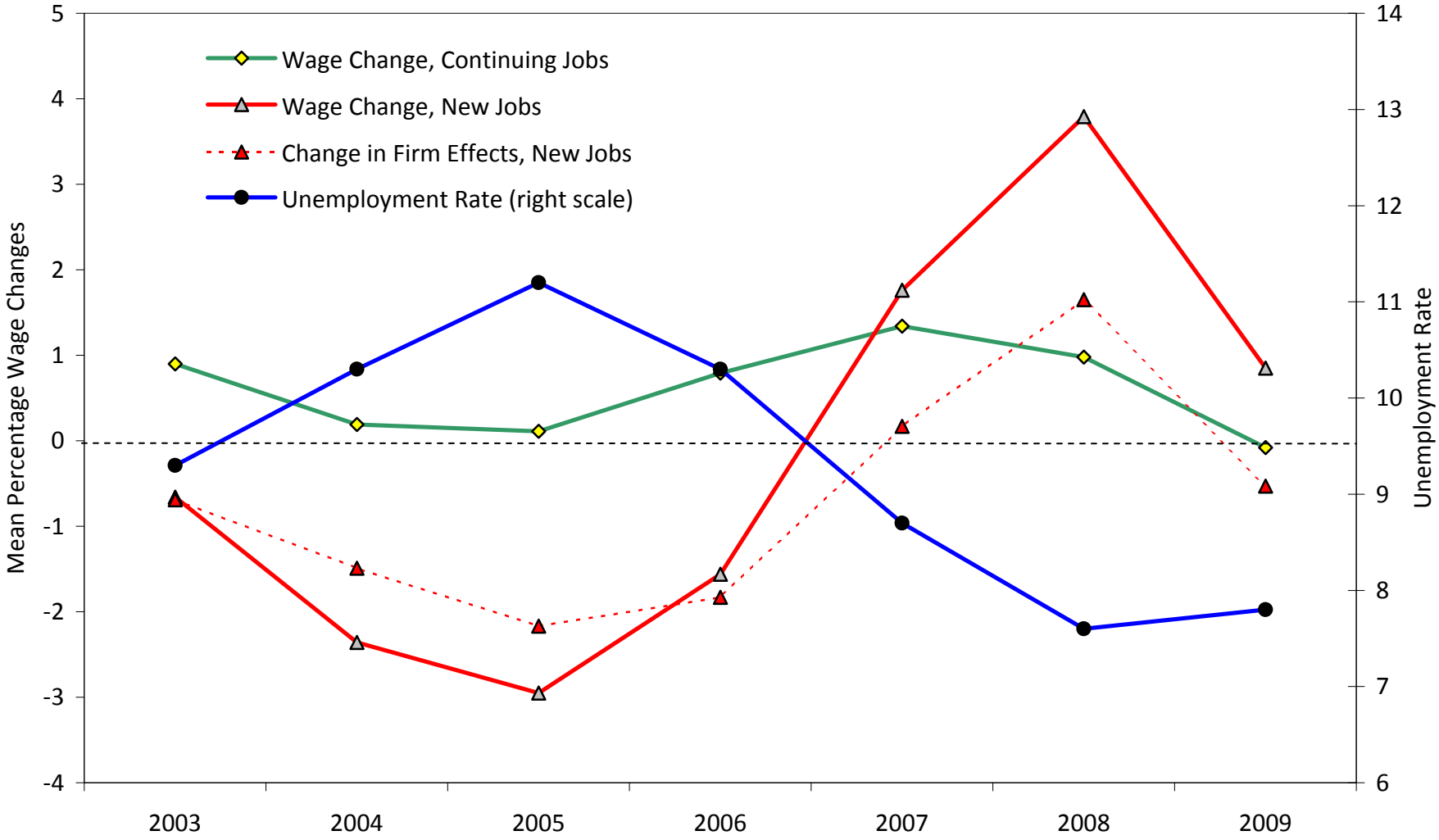
some part of cyclical wage adjustment arises from job-changers

Job changers:

$\Delta \log w = \Delta$firm effects + Δmatch effects

"quality" of new jobs (based on firm effect) is cyclical

Cyclicality in Wage Changes for Continuting and New Jobs (Full Time Males Only)



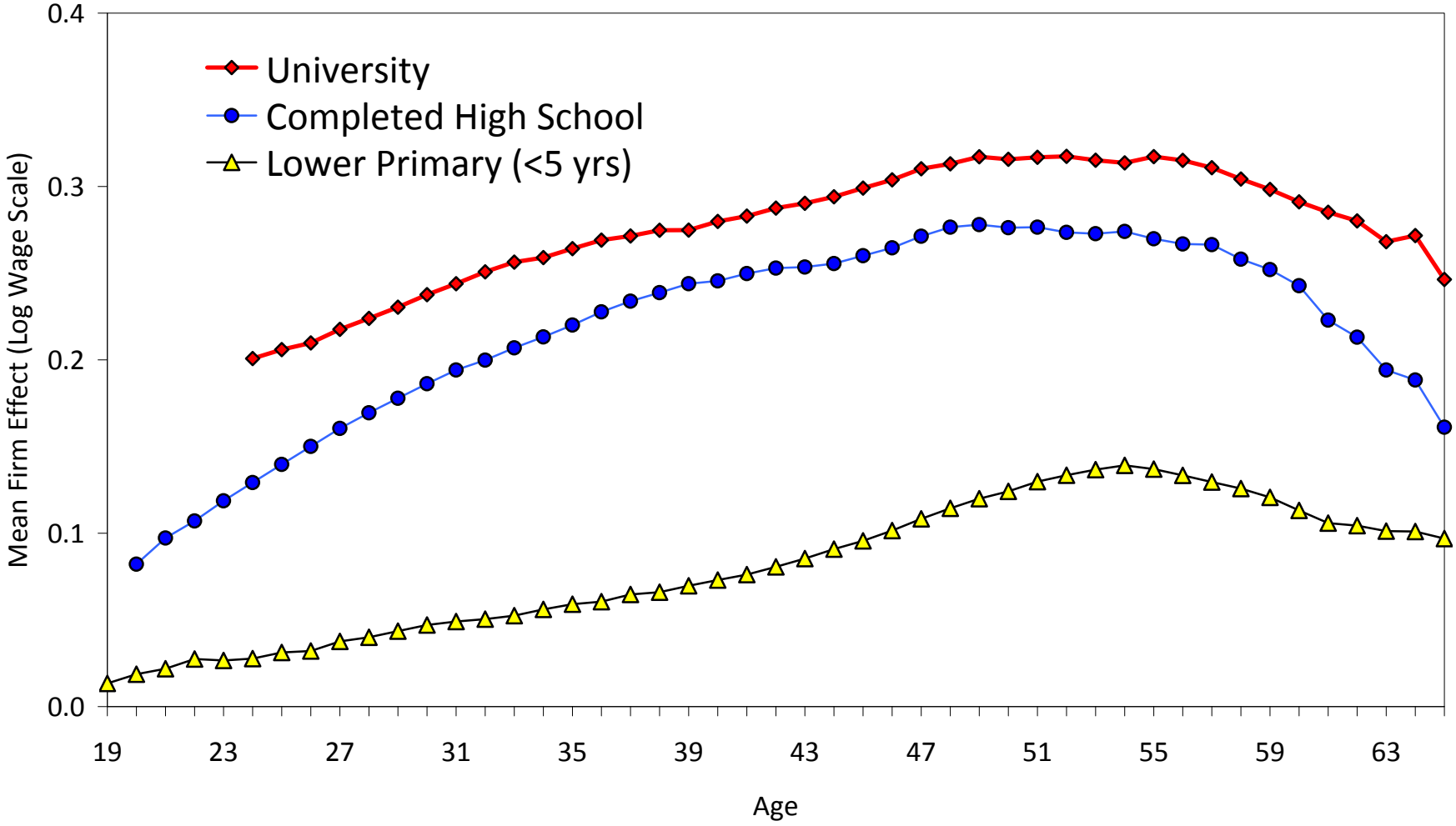
3. Early career progression

- Topel and Ward: young (male) workers' wages rise by changing jobs

- does this arise through rising firm quality (as measured by firm effects), rising match quality, or both?

- do long term effects of recession (Oreopoulos von Wachter, Kahn) come from lack of openings at high-wage firms?

Mean Firm Effects by Age: Portuguese Males



Note: Firm effects are normalized using the method in Card, Cardoso and Kline (2016).

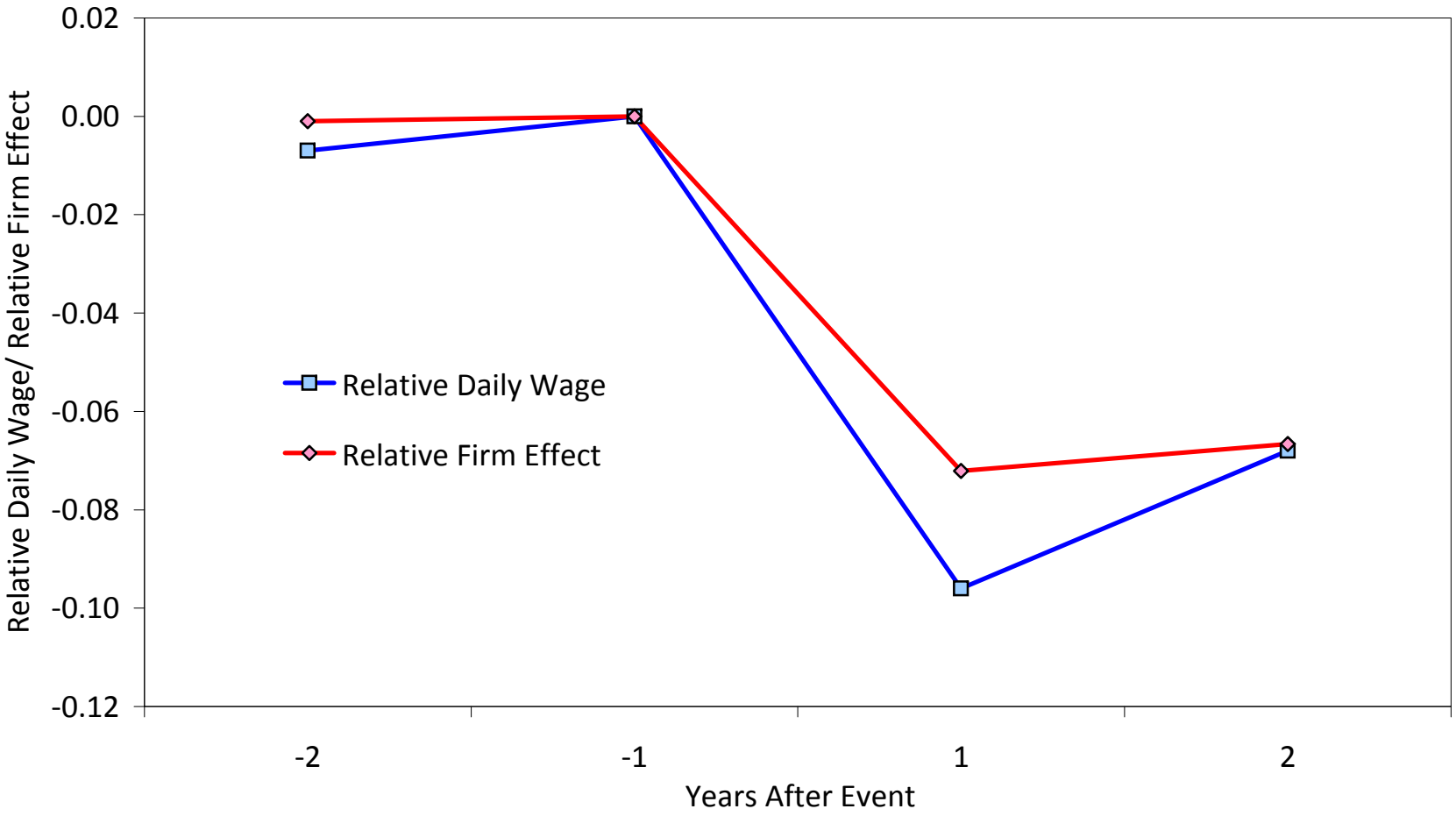
4. wage losses of displaced workers

- seminal JLS study: job losers in PA in early 1980s
  losses attributable to disappearing industry rents
  (and loss of union coverage)

- Davis + von Wachter: job losers with 3+ years tenure at plants with 50+ workers that shed 30% or more workers (*not closures*).

	Earnings Losses (with 0's)		
	1 yr out	5 yrs out	10 yrs out
avg expansion	-10%	-6%	-4%
avg recession	-17%	-10%	-6%

Contribution of Firm Effects to Wage Changes:
Workers Affected by Large Layoff Events, 2004-2007



Full time men with 2+ years of wage data before and after downsizing of 30% or more at firms with 50+ workers

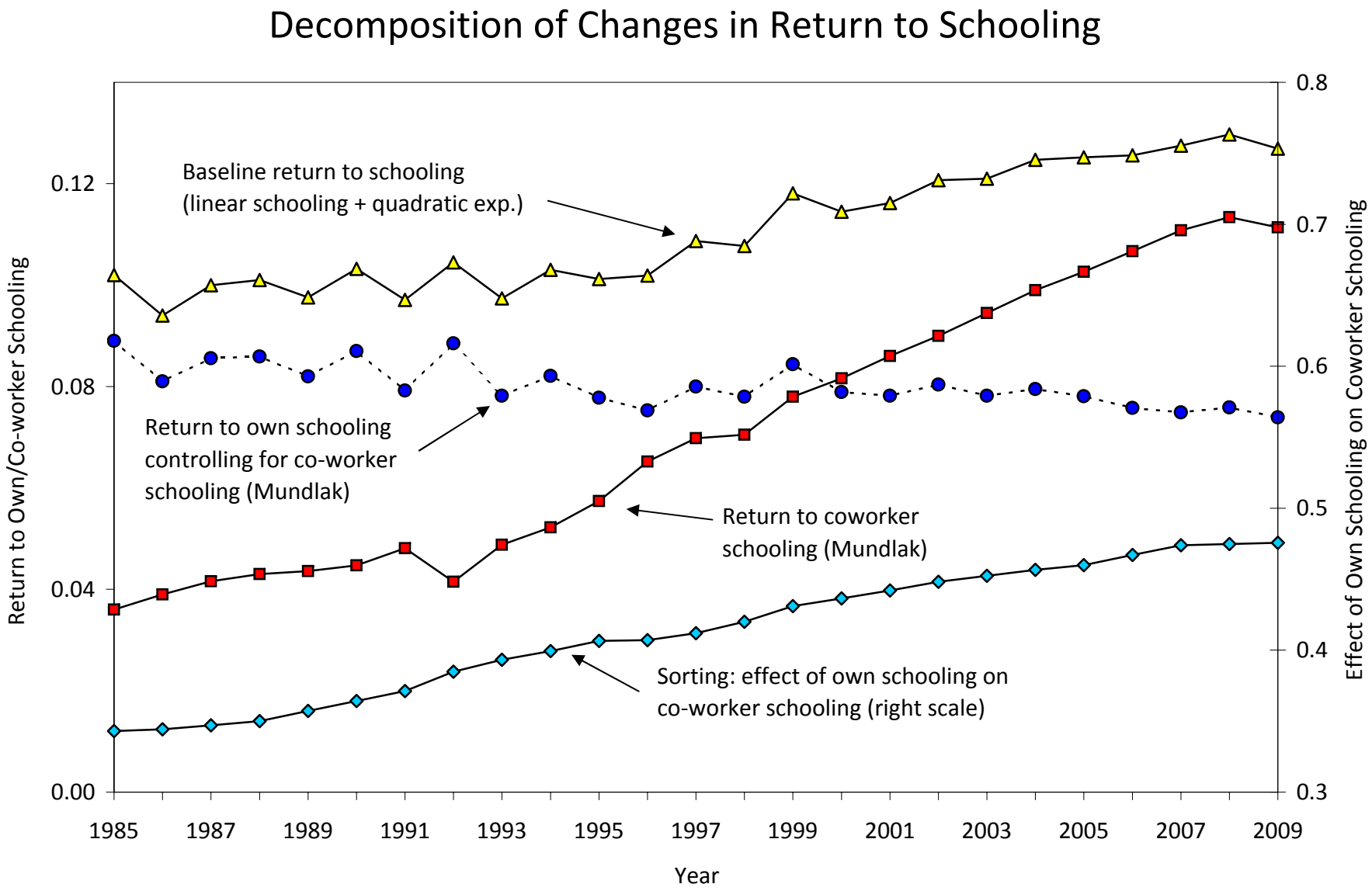
5. Rising returns to education

- CHK find increased sorting of more highly educated workers to higher-premium firms
- this “explains” all of the rise in return to education in W. Germany

- can be cross-checked by simple CRE approach:

log wage (i,t) = a(t) + b(t)ED(i,t) + c(t)Co-wkr ED(i,t)

- c(t) and Corr(ED, Co-wkr ED) are is rising over time
- b(t) is actually falling slightly


Decomposition of Changes in Return to Schooling
Baseline return to schooling
(linear schooling + quadratic exp.)
Return to own schooling
controlling for co-worker
schooling (Mundlak)
Return to coworker
schooling (Mundlak)
Sorting: effect of own schooling on
co-worker schooling (right scale)
Return to Own/Co-worker Schooling
Effect of Own Schooling on Coworker Schooling
Year
0.00
0.04
0.08
0.12
0.3
0.4
0.5
0.6
0.7
0.8
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009

V. What else *might* be related to firm wage premiums?

1. Other "gaps"
   a. racial wage gaps (Brazil)
   b. immigrant assimilation (works in Portugal)
   c. rise in incomes of the top 1% (Goldman effect)
2. Networks
   - network capital = mean(ψ_j) for friends
3. Intergeneration correlation in earnings (Kramarz-Skans)

Part II: A Simple Model of Wage Setting

- workers have heterogeneous preferences over firms

- firms set wages w_{Sj} = wage of skill group S at firm j

- no other frictions

- off-the-shelf model of preferences. For worker i in skill group S indirect utility at firm j is:

$$v_{iSj} = \beta_S \ln w_{Sj} + a_{Sj} + \epsilon_{iSj}$$

where a_{Sj} =skill-group-specific amenity, ϵ_{iSj} = EV1. Yields logit choice probabilities:

$$p_{Sj} \equiv P(v_{iSj} \geq v_{iSk} \ k \neq j) = \frac{\exp(\beta_S \ln w_{Sj} + a_{Sj})}{\sum_{k=1}^{J} \exp(\beta_S \ln w_{Sk} + a_{Sk})}$$

We assume $J = \#$ firms is large. Then:

$$p_{Sj} \approx \lambda_S \exp(\beta_S \ln w_{Sj} + a_{Sj}),$$

where (λ_H, λ_L) are market-specific constants, and firm-specific supply functions are:

$$\begin{aligned} \ln L_j(w_{Lj}) &= \ln(\mathcal{L}\lambda_L) + \beta_L \ln w_{Lj} + a_{Lj} \\ \ln H_j(w_{Hj}) &= \ln(\mathcal{H}\lambda_H) + \beta_H \ln w_{Hj} + a_{Hj} \end{aligned}$$

where $\mathcal{L}$ and $\mathcal{H}$ are total #'s of L and H workers in the market. Standard model assumes $\beta_S \to \infty$ (perfectly elastic).

Firm's production function $Y_j = T_j f(L_j, H_j)$. Optimal wage choices solve:

$$\min_{w_{Lj}, w_{Hj}} w_{Lj} L_j(w_{Lj}) + w_{Hj} H_j(w_{Hj}) \text{ s.t. } T_j f(L_j(w_{Lj}), H_j(w_{Hj})) \geq Y.$$

FOC:

$$\begin{aligned} w_{Lj} &= \frac{\beta_L}{1+\beta_L} T_j f_L \mu_j \\ w_{Hj} &= \frac{\beta_H}{1+\beta_H} T_j f_H \mu_j \end{aligned}$$

where $\mu_j = MC = MR$ at an optimum. Thus $T_j f_S \mu_j \equiv MRP_S$. So we have the standard "monopsony markdown". If $\beta_S = 9$ wage is marked down 10% relative to MRP.

Need to specify MR function and technology. We assume

$$P_j = P_j^0 (Y_j)^{-1/\varepsilon}$$

so $\varepsilon > 1$ is elasticity of product demand. So:

$$MR_j = \left(1 - \frac{1}{\varepsilon}\right) P_j^0 Y_j^{-1/\varepsilon}$$

Technology: begin with benchmark case:

$$Y_j = T_j((1-\theta)L_j + \theta H_j)$$

These imply:

$$\begin{aligned} w_{Lj} &= \frac{\beta_L}{1+\beta_L}(1-\theta)\left(1 - \frac{1}{\varepsilon}\right) T_j P_j^0 Y_j^{-1/\varepsilon} \\ w_{Hj} &= \frac{\beta_H}{1+\beta_H}\theta\left(1 - \frac{1}{\varepsilon}\right) T_j P_j^0 Y_j^{-1/\varepsilon}. \end{aligned}$$

NOTE: relative wage invariant to TFP

Implied rent sharing elasticities?

Let

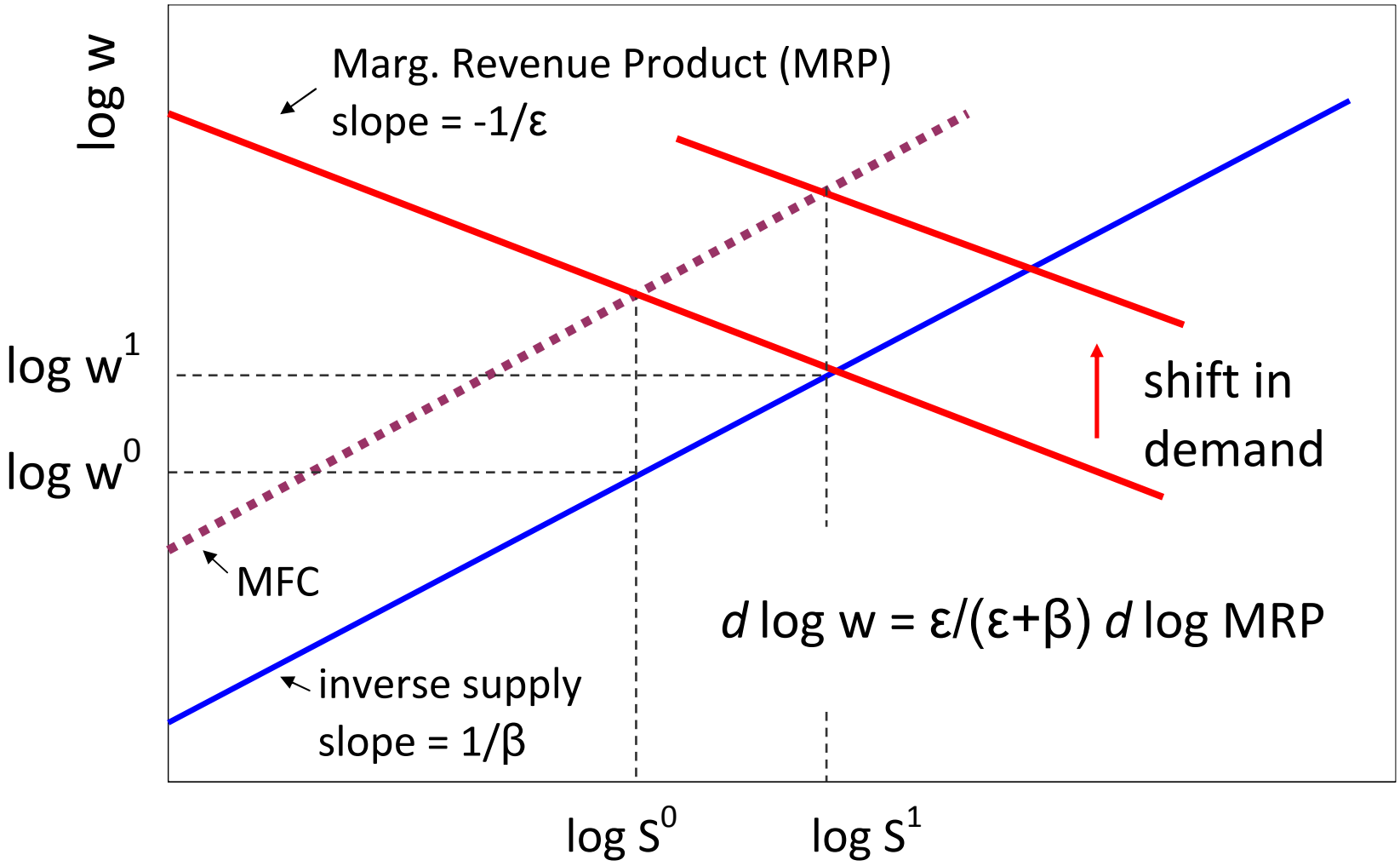
$$\overline{\beta}_j \;=\; \beta_L \kappa_j + \beta_H \left(1 - \kappa_j\right)$$

where $\kappa_j \equiv \frac{(1-\theta)L_j}{(1-\theta)L_j + \theta H_j}$ is the share of efficiency units of L labor. Then

$$\frac{\partial \ln w_{Lj}}{\partial \ln P_j^0} = \frac{\partial \ln w_{Hj}}{\partial \ln P_j^0} = \frac{\varepsilon}{\varepsilon + \overline{\beta}_j}$$
$$\frac{\partial \ln w_{Lj}}{\partial \ln T_j} = \frac{\partial \ln w_{Hj}}{\partial \ln T_j} = \frac{\varepsilon - 1}{\varepsilon + \overline{\beta}_j}.$$

So if $\varepsilon = 2$ and $\overline{\beta_j} = 9$ we get elasticity w.r.t. tech-driven TFP of 0.1.

Figure 9: Effect of TFP Shock (single skill group)



Consistency with AKM?

FOC imply:

$$\ln \frac{w_{Hj}}{w_{Lj}} = \ln \frac{\beta_H}{1+\beta_H} - \ln \frac{\beta_L}{1+\beta_L} + \ln \frac{\theta}{1-\theta}$$

which means that we can write:

$$\ln w_{Si} = \alpha_S + \psi_{J(i)}$$

where:

$$\alpha_S = 1[S = L] \times \ln \left((1-\theta)(\frac{\beta_L}{1+\beta_L}) \right) + 1[S = H] \times \ln \left(\theta(\frac{\beta_H}{1+\beta_H}) \right)$$

and:γ

$$\psi_j = \ln \left(\frac{\varepsilon - 1}{\varepsilon} \right) + \ln T_j + \ln P_j^0 - \frac{1}{\varepsilon} \ln Y_j$$

Implications for Market-Level Skill Premium

Market-wide average wage depends on distribution across firms.

$$E[\ln w_{Si}] \;=\; \alpha_S + \sum_j \psi_j \pi_{Sj}$$

where α_S is the mean "person component" for group S, and π_{Sj} is the fraction of group S workers at firm j. The second term is mean "rents" accruing to group S.

The market-wide skill gap is:

$$E[\ln w_{Hi}] - E[\ln w_{Li}] = \alpha_H - \alpha_L + \sum_j \psi_j (\pi_{Hj} - \pi_{Lj}).$$

These gaps can vary by gender (CCK), education (CHK) and age.

More general CES Technology?

Assume $f = [(1-\theta)L_j^{\rho} + \theta H_j^{\rho}]^{1/\rho}$,$\rho < 1$. The MP's are:

$$\begin{aligned} f_L &= (1-\theta)L_j^{\rho-1} f(L_j, H_j)^{1-\rho} \\ f_H &= \theta H_j{}^{\rho-1} f(L_j, H_j)^{1-\rho}\,. \end{aligned}$$

and the FOC's for wages can be written:

$$\begin{aligned} \left(1+\frac{1}{\sigma}\beta_L\right)\ln w_{Lj} &= \ln\left(\frac{\beta_L}{1+\beta_L}\right) + \ln(1-\theta) - \frac{1}{\sigma}a'_{Lj} + \Gamma_j \\ \left(1+\frac{1}{\sigma}\beta_H\right)\ln w_{Hj} &= \ln\left(\frac{\beta_H}{1+\beta_H}\right) + \ln\theta - \frac{1}{\sigma}a'_{Hj} + \Gamma_j \end{aligned}$$

where

$$\Gamma_j = \ln(1-\frac{1}{\varepsilon}) + \ln P_j^0 + (1-\frac{1}{\varepsilon})\ln T_j + (\frac{1}{\sigma}-\frac{1}{\varepsilon})\ln f(L_j, H_j)$$

Can derive rent sharing elasticities:

$$\frac{\partial \ln w_{Lj}}{\partial \ln P_j^0} = \frac{\sigma + \beta_H}{\sigma + \beta_L + \beta_H + \left(\frac{\sigma}{\varepsilon} - 1\right)\overline{\beta}_j + \frac{1}{\varepsilon}\beta_L\beta_H}$$

$$\frac{\partial \ln w_{Hj}}{\partial \ln P_j^0} = \frac{\sigma + \beta_L}{\sigma + \beta_L + \beta_H + \left(\frac{\sigma}{\varepsilon} - 1\right)\overline{\beta}_j + \frac{1}{\varepsilon}\beta_L\beta_H}$$

yielding a predicted relative wage effect:

$$\frac{\partial \ln(w_{Hj}/w_{Lj})}{\partial \ln P_j^0} = \frac{\beta_L - \beta_H}{\sigma + \beta_L + \beta_H + \left(\frac{\sigma}{\varepsilon} - 1\right)\overline{\beta}_j + \frac{1}{\varepsilon}\beta_L\beta_H}$$

The response of the firm-specific skill premium depends on the relative supply elasticites. Note sign.