

Creative Destruction and Subjective Well-Being

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Schumpeterian growth theory: main ideas

- 1 **growth results from quality-improving innovations**
- 2 **innovations result from profit-motivated (R&D) investments**
- 3 **innovations induce turnover and obsolescence (creative destruction)**

Introduction (1)

- Schumpeterian growth theory delivers distinctive predictions on:
 - ① The relationship between growth and industrial organization
 - ② The relationship between growth and firm dynamics
 - ③ The relationship between growth and development with the notion of appropriate institutions
 - ④ The relationship between growth, inequality, and social mobility
 - ⑤ The relationship between growth, search frictions and unemployment

Introduction (2)

- Here we use Schumpeterian growth theory to shed light on the question:
→ Does innovation-led growth increase or decrease (subjective) well-being?

Introduction (3)

- The existing empirical literature on happiness and income looks at how various measures of subjective well-being relate to income or income growth
 - e.g see Easterlin (1974), Blanchflower and Oswald (2004), Di Tella et al (2007), Deaton (2008), Wolfers and Stevenson (2013), Deaton and Stone (2013)
 - However, none of these contributions looks into the determinants of growth and at how these determinants affect well-being

Introduction (4)

- This paper is a first attempt at filling this gap
→ we look at how Schumpeterian creative destruction with its resulting flow of entry and exit of firms and jobs, affects subjective well-being differently for different types of individuals and in different types of labor markets and sectors.

Introduction (5)

- In the first part of the paper we develop a simple Schumpeterian model of growth and unemployment to organize our thoughts and generate predictions on the potential effects of turnover on life satisfaction
 - In the model a higher rate of turnover has both a direct and an indirect effect on life satisfaction.
 - *Direct effect*: more turnover translates into a higher probability of becoming unemployed: this tends to reduce life satisfaction.
 - *Indirect effect*: a higher rate of turnover implies a higher growth externality: this enhances life satisfaction.

Introduction (6)

- Overall effect of turnover is thus ambiguous and depends upon labor market, sectoral and individual characteristics
 - Higher turnover increases life satisfaction more the more generous the local unemployment insurance policy.
 - Higher turnover increases life satisfaction more in areas dominated by faster-growing sectors
 - Higher turnover increases life satisfaction more for more forward-looking or for less risk-averse individuals.

Introduction (7)

- In the second part of the paper we test the predictions of the model
 - by regressing subjective well-being on creative destruction, using variations across US Metropolitan areas
 - in event studies using German individual level longitudinal data and the Hartz reforms

Introduction (8)

- In the cross-section, our main finding is that the effect of the turnover rate on life satisfaction is unambiguously positive when we control for unemployment and less so if we do not control for unemployment.

This finding holds:

- whether looking at well-being at MSA-level or at individual level;
- whether looking at the life satisfaction measure from the BRFSS or at the Cantril Ladder measures from the Gallup survey
- using alternative databases and indicators to measure creative destruction.

Introduction (9)

- The event studies show that
 - job to job transitions have a positive effect on life satisfaction
 - job to unemployment transitions have a negative effect, but less so in more flexible labor markets and for younger individuals

Introduction (10): Related literature

- Literature on growth, job turnover and unemployment: e.g see Davis, Haltiwanger, and Schuh (1996), Mortensen and Pissarides (1998), and Aghion and Howitt (1998)
→ we contribute to this literature by looking at the counteracting effects of innovation-led growth on subjective well-being
- Literature on income and well-being: e.g see Easterlin (1974), Blanchflower and Oswald (2004), Senik(2005), Di Tella et al (2007), Deaton (2008), Stevenson and Wolfers (2008), Deaton and Stone (2013)
→ we contribute to this literature by putting firm and job turnover on the RHS of the regression equations and by disentangling the various effects of turnover-driven growth on life satisfaction

Outline

- 1 Introduction
- 2 **Model**
- 3 Cross-section analysis
- 4 Longitudinal analysis
- 5 Conclusion

Model (1)

- Multi-sector Schumpeterian growth model
- Innovations generate endogenous obsolescence of firms and jobs
- Workers in obsolete firms join the unemployment pool until they are matched to a new firm

Model (2)

- The economy is populated by infinitely-lived and risk-neutral individuals of measure one, and they discount the future at rate $\rho = r$.
- The final good is produced according to:

$$\ln Y_t = \int_{j \in \mathcal{J}} \ln y_{jt} dj$$

where $\mathcal{J} \subset [0, 1]$ is the set of active product lines, with measure $J \in [0, 1]$ invariant in steady state

- Each intermediate firm produces using one unit of labor according to the following linear production function,

$$y_{jt} = A_{jt} l_{jt},$$

where $l_{jt} = 1$ is the labor employed by the firm, and the same in all sectors

Model (3)

- An innovator in sector j at date t will move productivity in sector j from A_{jt-1} to $A_{jt} = \lambda A_{jt-1}$
- The innovator is a new entrant, and entry occurs in each sector with Poisson arrival rate λ which we take to be exogenous
- Upon entry in any sector, the previous incumbent firm becomes obsolete and its worker loses her job and the entering firm posts a new vacancy
- Production in that sector resumes with the new technology when the firm has found a new suitable worker.
- Thus the measure of inactive product lines is equal to the unemployment rate

$$u_t = 1 - J_t,$$

where u denotes the equilibrium unemployment rate.

Model (4)

- Let

$$m(u_t, v_t) = u_t^\alpha v_t^{1-\alpha}$$

denote the arrival rate of new matches between firms and workers, where u_t denotes the number of unemployed at time t and v_t denotes the number of vacancies.

- The flow probability for each unemployed worker to find a suitable firm is

$$m(u_t, v_t) / u_t$$

- The flow probability for any new entrant firm to find a suitable new worker is

$$m(u_t, v_t) / v_t$$

- Finally, we assume that in each intermediate sector where a worker is currently employed, the worker appropriates fixed of ex post surplus whereas the complementary fraction accrues to the employer.

Model (5)

- Our proxy for life satisfaction is the average present value of an individual employee, namely:

$$W_t = u_t U_t + (1 - u_t) E_t,$$

where:

- 1 U_t is the net present value of an individual who is currently unemployed
- 2 E_t is the net present value of an individual who is currently employed.

Model (6)

- Asset equations:

$$\rho E_t - \dot{E}_t = w_t + x(U_t - E_t)$$

$$\rho U_t - \dot{U}_t = b_t + (m(u_t, v_t) / u_t)(E_t - U_t)$$

Model (7)

- We assume Nash-bargaining within each firm
- This, together with logarithmic production technology, implies that:

$$w_t = \frac{\beta}{1 + \beta} Y_t.$$

- And we take

$$b_t = bY_t$$

Solving the model (1): Equilibrium unemployment

- Our focus is on steady state in which
 - all aggregate variables grow at the same constant rate g
 - aggregate unemployment u and the number of vacancies remain constant
- In steady state, the flow out of unemployment must equal the flow into unemployment:

$$m(u, v) = (1 - u)x.$$

- In addition, the number of sectors without an employed worker is equal to the number of sectors with an open vacancy, that is:

$$u = v.$$

- Therefore:

$$u = (1 - u)x$$

or

$$u = \frac{x}{1 + x}$$

Solving the model (2): Steady state growth

- The growth rate of the economy is equal to

$$g = f \ln \lambda,$$

where f denotes the flow of sectors in which a new innovation is being implemented

- This flow is simply equal to the rate at which new firm-worker matches occur:

$$f = m.$$

- Using the fact that in steady-state equilibrium we have:

$$m = u = \frac{x}{1+x},$$

we get the equilibrium growth rate:

$$g = \frac{x}{1+x} \ln \lambda.$$

Solving the model (3): Equilibrium life satisfaction

- Recall that our proxy for life satisfaction is the average present value of an individual employee, namely:

$$W = uU + (1 - u)E,$$

where:

$$\begin{aligned} rE - \dot{E} &= \beta\pi Y + x(U - E) \\ rU - \dot{U} &= bY + (m(u, v)/u)(E - U) \end{aligned}$$

Solving the model (4): Equilibrium life satisfaction

- Now use the fact that in steady state we have:

1

$$\dot{E} = gE \text{ and } \dot{U} = gU,$$

2

$$m/u = 1$$

3

$$u = x/(1 + x)$$

Solving the model (5): Equilibrium life satisfaction

- We then end up with:

$$W = \frac{Y}{r-g} \left[\beta\pi - \frac{xB}{1+x} \right]$$

where

$$g = \frac{x}{1+x} \ln \lambda.$$

and where

$$B \equiv \beta\pi - b.$$

Solving the model (6):

- Counteracting effects of turnover on life satisfaction:
 - ① For given growth rate g , more turnover:
 - ★ increases probability that currently employed workers will lose their job
 - ② Higher turnover increases the growth rate g which in turns acts positively on life satisfaction due to a *capitalization* effect.

Solving the model (6):

- Counteracting effects of turnover on life satisfaction:
 - ① For given growth rate g , more turnover:
 - ★ increases probability that currently employed workers will lose their job
 - ★ increases probability that currently unemployed workers will find a new job.
 - ② Higher turnover increases the growth rate g which in turns acts positively on life satisfaction due to a *capitalization* effect.

Solving the model (7): First proposition

Proposition

A higher turnover rate x increases life satisfaction W more the lower the discount rate ρ , i.e:

$$\frac{\partial^2 W}{\partial x \partial \rho} < 0$$

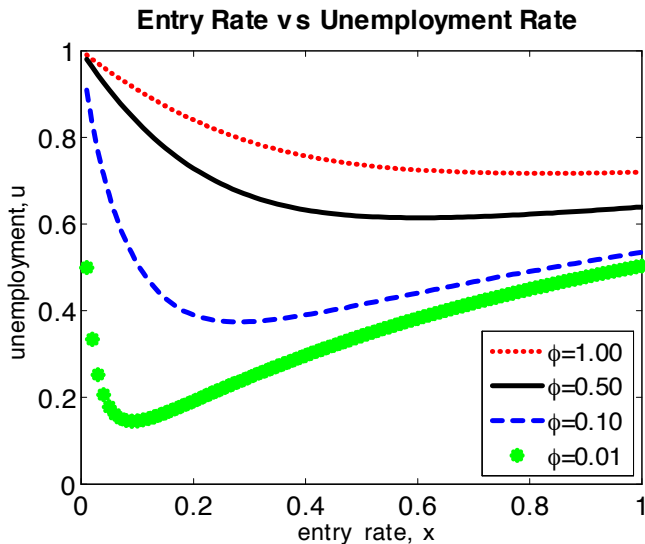
And life satisfaction increases with turnover when $\rho < \frac{\beta\pi \ln \lambda}{B}$, and it decreases with turnover otherwise. Moreover, life satisfaction increases more with creative destruction (i.e with x) when the unemployment benefit is more generous. i.e:

$$\frac{\partial^2 W}{\partial x \partial b} > 0.$$

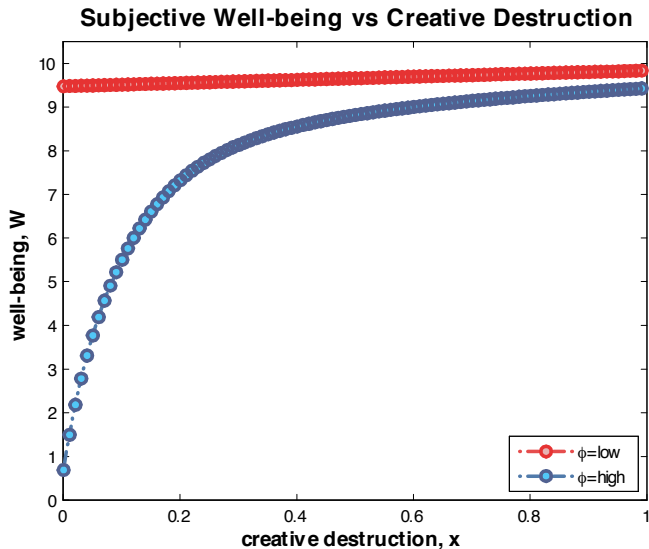
Extension: Exogenous job destruction (1)

- In our baseline model, the only source of job destruction, as well as job creation, was new entry.
- Now assume instead that each job can also be destroyed at the rate ϕ .
 - 1 Upon this shock, worker joins the unemployment pool and the product line becomes idle.
 - 2 When a new entrant comes into this product line at the rate λ , it first posts a vacancy in which case then the same product line moves from "idle" into "vacant" state.
 - 3 When a vacant product line finds a suitable worker, the product line enter into "production state". Similarly, if a new entrant enters into a actively producing line, then the worker joins the unemployment pool and the new firm posts a vacancy as in the previous model.

Extension: Exogenous job destruction (2)



Extension: Exogenous job destruction (3)



Other extensions

- Risk aversion
- Endogenous entry
- Transitional dynamics

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Data (1)

- The data on job turnover and creative destruction
→ come from the Business Dynamics Statistics, which provides, at the metropolitan (MSA) level, information on job creation and destruction rates as well as on the entry and exit rates of establishments
→ these rates are computed from the whole universe of firms as described in the Census Longitudinal Business Database
- We also use the Longitudinal Employer-Household Dynamics (LEHD) data from the Census, which provides information on hires, separations, employment, and thus turnover, also at the MSA level but with detailed industry breakdown.

Data (2)

- From BDS database we look at:
 - 1 job creation (destruction)
→ job creation (destruction) rate = sum of all employment gains (losses) from expanding (contracting) establishments from year $t - 1$ to year t including establishment startups (shutting down), divided by average employment between $t - 1$ and t
 - 2 job turnover rate (sum of job creation rate and job destruction rate)
 - 3 establishment turnover rate

Data (3)

- The data on subjective well-being comes from:
 - 1 the Gallup Healthways Wellbeing Index survey, which asks each day several distinct questions on subjective well-being to 1,000 randomly selected individuals . It starts in 2008.
 - 2 the Behavioral Risk Factor and Surveillance System, which started asking a "life satisfaction" question in 2005.
- Both have very large sample size: $\approx 350,000$ respondents / year

Data (4)

- To proxy for subjective well-being in Gallup-Healthways, we use
 - 1 the **current Cantril ladder** constructed based on the question "Imagine a ladder from 0 to 10[...]on which step of the ladder would you say you personally feel you stand at this time?"
 - 2 the **anticipated Cantril ladder** based on the question "What level of the ladder do you anticipate to achieve in five years?"
 - 3 we also investigate how creative destruction affects a measure of individuals "**worry**", based on binary answers to the question "Did you experience worry during a lot of the day yesterday?"

Data (5)

- To proxy for subjective well-being in the BRFSS, we use the **Life satisfaction** question : "In general how satisfied are you with your life?"
- The possible answers are "Very satisfied" (1), "Satisfied" (2), "Dissatisfied" (3), "Very dissatisfied" (4)
- We recoded them so that an increase in the variable means an increase in subjective well-being

Summary statistics - subjective well-being

	Mean	Standard deviation	Min	Max
Current ladder (Gallup)	6.78	1.95	0	10
MSA-level averages	6.78	0.14	6.15	7.51
Anticipated ladder (Gallup)	8.05	1.99	0	10
MSA-level averages	8.05	0.15	7.42	8.48
Worry (Gallup)	0.32	0.47	0	1
MSA-level averages	0.32	0.02	0.22	0.40
Life satisfaction (BRFSS)	3.37	0.63	1	4
MSA-level averages	3.37	0.05	3.14	3.58

Summary statistics -creative destruction

(2005-2010 averages)	Mean	Standard deviation	Min	Max
Job turnover (BDS)	0.29	0.035	0.18	0.43
Job creation rate (BDS)	0.15	0.015	0.08	0.22
Job destruction rate (BDS)	0.14	0.017	0.09	0.22
Unemployment rate (BLS)	0.065	0.015	0.03	0.24

Results outline

- MSA-level regressions
 - across year averages to mirror the steady-state analysis of the model
- Individual-level regressions
 - rich set of controls for individual determinants of well-being
- Robustness
 - alternative database and Bartik-type measure for creative destruction
- Interactions
 - with state-level (unemployment insurance) policy
 - with MSA-level sectoral composition
 - with individual characteristics

MSA-level analysis

- We regress time-average of SWB on corresponding time averages of turnover with and without control for time average of MSA-level unemployment

Metropolitan Statistical Area (MSA) Results 1/4

VARIABLES	(1)	(2)	(3)	(4)	(5)
	Current ladder - Gallup data (2008-2011)				
Unemployment rate	-2.678*** (0.566)		-3.428*** (0.580)		-2.421*** (0.550)
Job turnover		0.526 (0.368)	1.303*** (0.370)		
Job creation rate				6.454*** (1.106)	4.809*** (0.980)
Job destruction rate				-4.482*** (0.774)	-2.080*** (0.700)
Observations	363	363	363	363	363
R-squared	0.139	0.014	0.212	0.190	0.265

Metropolitan Statistical Area (MSA) Results 2/4

VARIABLES	(1)	(2)	(3)	(4)	(5)
	"How satisfied are you with your life?" - BRFSS(2005-2010)				
Unemployment rate	-1.790*** (0.251)		-1.927*** (0.244)		-1.599*** (0.249)
Job turnover		0.0306 (0.103)	0.228*** (0.0767)		
Job creation rate				1.936*** (0.325)	1.166*** (0.307)
Job destruction rate				-2.240*** (0.423)	-0.964** (0.432)
Observations	364	364	364	364	364
R-squared	0.282	0.001	0.307	0.174	0.344

Metropolitan Statistical Area (MSA) Results 3/4

VARIABLES	(1)	(2)	(3)	(4)	(5)
	Anticipated ladder - Gallup (2008-2011) -				
Unemployment rate	-0.499 (0.529)		-1.872*** (0.469)		-1.274** (0.513)
Job turnover		1.961*** (0.291)	2.385*** (0.319)		
Job creation rate				5.332*** (0.896)	4.467*** (0.884)
Job destruction rate				-0.887 (0.741)	0.377 (0.875)
Observations	363	363	363	363	363
R-squared	0.004	0.167	0.220	0.218	0.236

Metropolitan Statistical Area (MSA) Results 4/4

VARIABLES	(1)	(2)	(3)	(4)	(5)
	Worry - Gallup (2008-2011) -				
Unemployment rate	0.549*** (0.0802)		0.500*** (0.0859)		0.427*** (0.0913)
Job turnover		0.200*** (0.0603)	0.0865 (0.0585)		
Job creation rate				-0.459** (0.185)	-0.169 (0.170)
Job destruction rate				0.757*** (0.146)	0.334** (0.148)
Observations	363	363	363	363	363
R-squared	0.175	0.059	0.186	0.125	0.194

MSA-level analysis

One standard deviation increase in job turnover has an effect on subjective well-being equivalent to :

- ▶ a 1.2 percentage points (0.6 standard deviation) decrease in the unemployment rate for current well-being
- ▶ a 3.9 percentage points (2 standard deviations) decrease in the unemployment rate for anticipated well-being

Individual-level analysis

- The specification at the individual level is:

$$SWB_{i,m,t} = \delta CD_{m,t} + \alpha U_{m,t} + \beta X_{i,m,t} + \varepsilon T_t + \epsilon_{i,s,t},$$

- Individual controls include : gender, ethnicity, detailed education and family status, age, age2
- Year and Month Fixed effect
- Standard errors clustered at the MSA level
- We restrict attention to working-age individuals (18-60 years old)

Individual level results 1/2 - Current ladder (Gallup)

VARIABLES	(1)	(2)	(3)	(4)	(5)
			"Current ladder"		
Unemployment Rate	-2.446*** (0.421)		-2.878*** (0.431)		-2.530*** (0.422)
Job turnover		0.254 (0.246)	0.752*** (0.230)		
Job creation rate				1.561*** (0.440)	1.044*** (0.351)
Job destruction rate				-0.765*** (0.289)	0.211 (0.268)
Month F.E.	x	x	x	x	x
Year F.E.	x	x	x	x	x
Observations	502,334	502,334	502,334	502,334	502,334
R-squared	0.058	0.058	0.058	0.058	0.058

Individual level results 2/2 - Anticipated ladder

VARIABLES	(1)	(2)	(3)	(4)	(5)
	" Anticipated ladder"				
Unemployment Rate	0.108 (0.357)		-0.705** (0.307)		-0.677** (0.307)
Job turnover		1.319*** (0.154)	1.441*** (0.151)		
Job creation rate				1.601*** (0.275)	1.516*** (0.259)
Job destruction rate				1.099*** (0.230)	1.373*** (0.218)
Month F.E.	x	x	x	x	x
Year F.E.	x	x	x	x	x
Observations	490,316	490,086	490,086	490,086	490,086
R-squared	0.077	0.077	0.077	0.077	0.077

Individual level analysis

One standard deviation increase in job turnover has an effect on

- ▶ current well-being, equivalent to
 - ▶ a 0.4 standard deviation decrease in the unemployment rate
 - ▶ a 0.06 standard deviation increase in log of total household's income
- ▶ anticipated well-being, equivalent to
 - ▶ a 3.4 standard deviations decrease in the unemployment rate
 - ▶ a 0.2 standard deviation increase in log of total household's income

Robustness analysis

- We use a predicted (Bartik-type) measure of job turnover
→ To neutralize variations of turnover driven by idiosyncratic local shocks that could have a direct effect on well-being

$$\widehat{CD}_{m,t} = \sum_j \omega_{j,m,2004} \times CD_{j,USA,t}$$

- $\omega_{j,m,2004}$ is derived from the sectoral distribution of employment in MSA m in 2004
- $CD_{j,USA,t}$ are the nationwide measures of creative destruction for each sector of activity
- We regress well-being on predicted creative destruction, controlling for $(\omega_{j,m,2004})_j$

Robustness to "predicted" measure of creative destruction

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
	"How satisfied are you with your life?"					
Job turnover (stable jobs)	0.246*** (0.0517)	0.145*** (0.0470)				
Predicted turnover (stable jobs)			0.884** (0.445)			
Job turnover (all jobs)				0.223*** (0.0341)	0.158*** (0.0379)	
Predicted turnover (all jobs)						0.622* (0.320)
Unemp. rate	-0.808*** (0.131)	-0.728*** (0.144)	-0.757*** (0.147)	-0.883*** (0.122)	-0.717*** (0.143)	-0.754*** (0.147)
Indiv. controls	x	x	x	x	x	x
Sectoral comp. 2005		x	x		x	x
Year F.E.	x	x	x	x	x	x
Month F.E.	x	x	x	x	x	x
Observations	837,897	834,671	837,557	837,897	834,671	837,557
R-squared	0.074	0.075	0.074	0.074	0.075	0.074

Interactions

- At the state level: with the unemployment insurance policy in the state
- **At the MSA level: with the type of sectors that dominate the MSA**
- At the individual level: with individual characteristics

Interactions: MSA-level

- For each MSA, we use the sectoral shares to compute the predicted value of productivity growth or outsourcing threat
- Following Autor et al. (2013) we proxy outsourcing by growth of imports in a given sector between 1991 and 2007
- The measure of productivity comes from the NBER-CES Manufacturing database: for each sector, we average annual productivity growth over 2005-2009 (the data stops in 2009)

Interactions: MSA-level

- The specification is:

$$\begin{aligned} SWB_{i,m,t} = & \delta CD_{m,t} + \gamma CD_{m,t} * Abovemedian_{m,t} \\ & + \theta Abovemedian_{m,t} \\ & + \alpha U_{m,t} + \beta X_{i,m,t} + T_t + \epsilon_{i,s,t}, \end{aligned}$$

- Above median is either in terms of predicted productivity growth or in terms of predicted outsourcing threat
- We use the same Bartik-type approach as before
- Individual controls include : gender, ethnicity, detailed education and family status, age, age2; year and month fixed effects; standard errors clustered at the MSA level

Interactions with productivity growth

VARIABLES	(1)	(2)	(3)	(4)
		Life satisfaction (BRFSS)		
Above median * Job turnover	0.190** (0.0755)	0.160** (0.0757)		
Above median * Job creation			0.267** (0.106)	0.278*** (0.106)
Above median * Job destruction			0.0661 (0.113)	0.00111 (0.114)
Job turnover	0.0727 (0.0611)	0.139** (0.0617)		
Job_creation			0.293*** (0.0927)	0.183** (0.0930)
Job_destruction			-0.149 (0.0966)	0.0973 (0.101)
Above median TFP growth	-0.0603*** (0.0215)	-0.0551** (0.0215)	-0.0542** (0.0214)	-0.0496** (0.0215)
Unemployment_Rate		x		x
Indiv controls	x	x	x	x
Year and Month F.E.	x	x	x	x
Observations	707,362	707,362	707,362	707,362
R-squared	0.073	0.074	0.073	0.074

Interactions with outsourcing threat

VARIABLES	"How satisfied are you with your life?" (BRFSS)	
Above median * Job turnover	-0.113*	
	(0.0661)	
Job turnover	0.236***	
	(0.0446)	
Above median * Job destruction		-0.183*
		(0.100)
Job destruction rate		0.188**
		(0.0810)
Above median * Job creation rate		-0.0566
		(0.0906)
Job creation rate		0.279***
		(0.0696)
Outsourcing above median	x	x
Unemployment Rate	x	x
Individual controls	x	x
Year and Month F.E.	x	x
Observations	852,125	852,125
R-squared	0.074	0.074

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Event studies 1/2

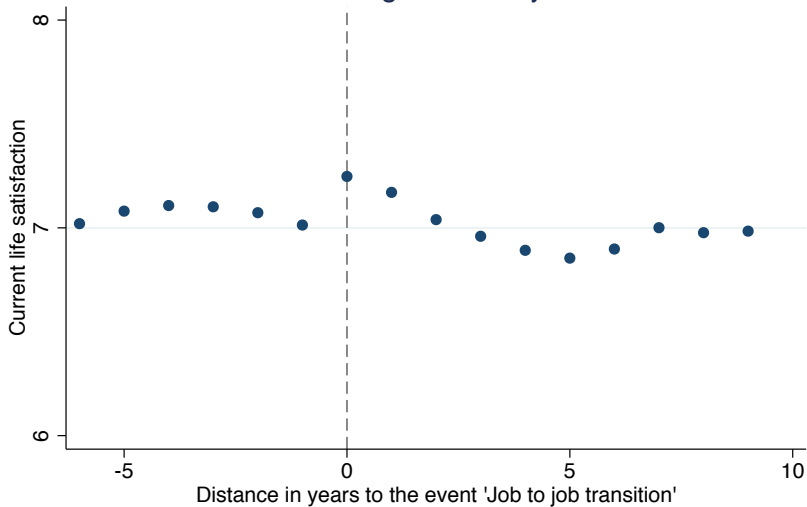
- ▶ German Socio-Economic Panel :
 - ▶ Sample includes approx. 12,000 households and 20,000 adult persons
 - ▶ Households interviewed every year since 1984

- ▶ Many questions on subjective well-being
 - ▶ We rely on answers to the same Cantril ladder used in Gallup
 - ▶ The mean (7) and standard deviation (1.8) of this variable are similar to those in the Gallup data

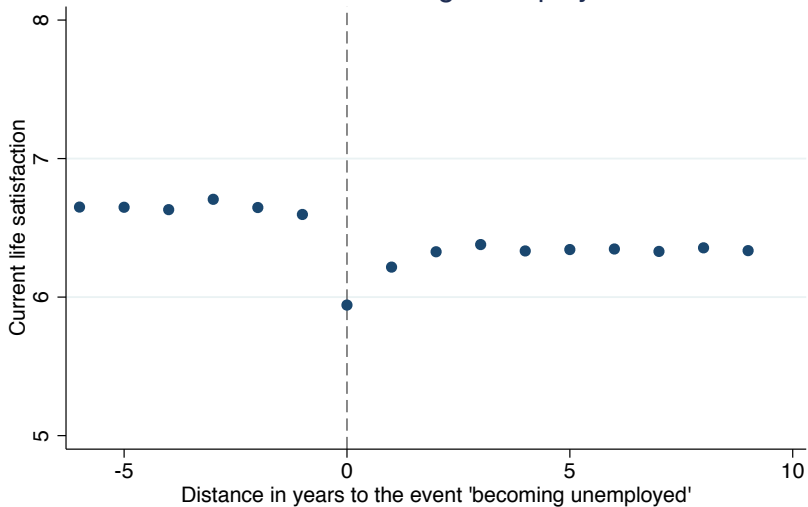
Event studies 2/2

- ▶ We look for a given individual at the evolution of its subjective well-being around
 - ▶ Job to job transitions
 - ▶ Job to unemployment transitions

Evolution of current life satisfaction when transitioning from one job to another



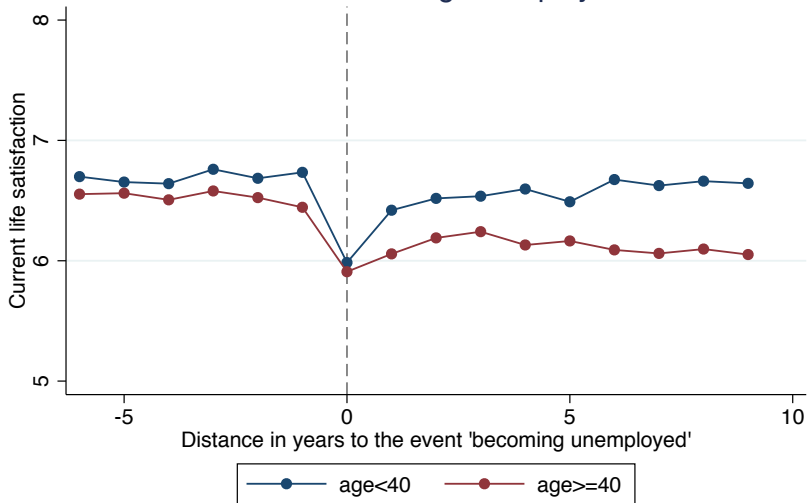
Evolution of current life satisfaction when becoming unemployed



Evolution of current life satisfaction when becoming unemployed



Evolution of current life satisfaction when becoming unemployed



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Conclusion (1)

- We have analyzed the relationship between turnover-driven growth and subjective well-being, using both:
 - 1 US Metropolitan level turnover and well-being data
 - 2 German individual longitudinal data

Conclusion (2): Summary of results

- "Theory works", namely:
 - 1 The overall effect of turnover (creative destruction) on subjective well-being is unambiguously positive when we control for MSA-level unemployment, less so if we do not
 - 2 Creative destruction has a more positive effect on anticipated life satisfaction than on current life satisfaction
 - 3 Creative destruction increases "worry", but less so if control for unemployment
 - 4 Creative destruction has a more positive effect on subjective well-being in MSAs dominated by sectors that are faster-growing or outsource less
 - 5 Negative effect of transition from job to unemployment on subjective well-being, is mitigated in more flexible labor markets

Conclusion (3): Extensions

- 1 Compare more systematically the determinants of (per capita) GDP growth with the determinants of life satisfaction
- 2 Look at other individual characteristics or characteristics of labor market (training systems, availability of vocational education,..) which should also impact on the effects of turnover on subjective well-being

