THE CUMULATIVE DISADVANTAGE OF UNEMPLOYMENT

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Acknowledgement

Motivation: unemployment scarring

- Research question: how quick do workers' careers recover from a spell of unemployment?

- Common approaches:

  – Survival models: focus on single transitions (i.e., from unemployment to employment) or competing risk outcomes;

  – Sequence analytic approaches describe the sequence of post-unemployment transitions;

Motivation

- How to quantify recovery in terms of career quality?

- Binary sequences:

  - Successes (S) vs Failures (F)

Career quality measure: The sum of the position indices of the S-observations quantifies the quality level: the more S-observations and/or the more recent these are, the bigger the sum will be.

Requirements for a new quality measure

a) has a fixed range of [0,1];

b) increases when the number of successes increases;

c) decreases when the number of failures increases;

d) increases when the number of successes is more recent;

e) accounts for the occurrence of successes by means of a weight which captures the fraction of successes relative to the total sequence;

Implementation: Quality Measure

- A sequence is successful when a desirable quality/attribute frequently appears towards the end of a sequence

$\Upsilon^w(x)$				$\Upsilon^w(x)$			
x	w=.5	w=1	w=2	x	w=.5	w=1	w=2
FFFSSS	.62	.71	.85	**SSSS**	1.0	1.0	1.0
FFSFSS	.59	.67	.77	**SFSS**	.77	.80	.87
FSFFSS	.56	.62	.71	**SSFS**	.72	.70	.70
SFFFSS	.53	.57	.68	**SSSF**	.67	.60	.47
SFFSFS	.50	.52	.58	**FSSF**	.51	.50	.43
SFSFFS	.48	.48	.51	**SFSF**	.44	.40	.33
SSFFFS	.45	.43	.45	**SSFF**	.39	.30	.17
SSFFSF	.43	.38	.33	**FSFF**	.23	.20	.13
SSFSFF	.41	.33	.23	**SFFF**	.16	.10	.03
SSSFFF	.38	.29	.15	**FFFF**	.00	.00	.00

Implementation: Quality Measure

$$x = S^4 F^4 S^6 F^2 S^8 F^1 S^{25}$$
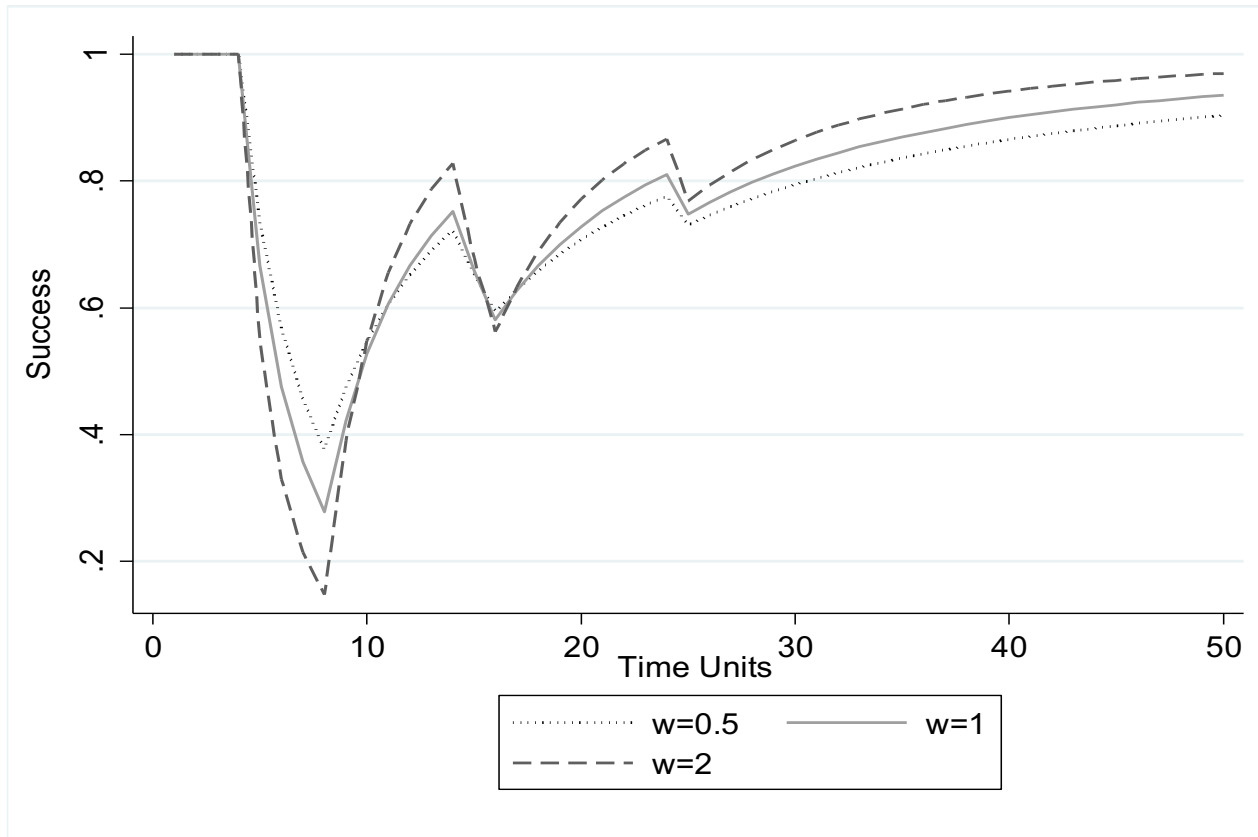
The effect of a run of failures depends on its length: the longer the run, the more severe the effect.

The bigger the parameter w, the more severe is the effect of failures, but recovery from the failures due to subsequent successes is also faster for bigger w

Data Management

* Make data ready for sequence analysis

```
bys pid (wave): gen order=_n
```

* sq-set the data

```
sqset lfs pid order
forvalues x = 1/13 {
egen s`x' = sqsuccess(1), w(0.5) subsequence(1,`x')
}
```

* Create a single success measure

```
gen s_at_t=.
forvalues x=1/13 {
replace s_at_t=s`x' if order==`x'
}
```

Data Management

Labour Force Status: N = Not in the labour force; **EPT** = Employed Part-Time; **EFT** = Employed Full-Time; **U** = Unemployed;

```
lfs         pid         order
N           100001      1
EPT         100001      2
EPT         100001      3
EPT         100001      4
EPT         100002      1
EPT         100002      2
EPT         100002      3
EPT         100002      4
EPT         100003      1
EPT         100003      2
EPT         100003      3
EFT         100003      4
EFT         100003      5
U           100003      6
EFT         100003      7
N           100003      8
EPT         100003      9
EPT         100003      10
N           100003      11
N           100003      12
N           100003      13
```

Data Management

| lfs	pid	order	success measure
N	100001	1	0
EPT	100001	2	.6666667
EPT	100001	3	.8333333
EPT	100001	4	.9
EPT	100002	1	1
EPT	100002	2	1
EPT	100002	3	1
EPT	100002	4	1
EPT	100003	1	1
EPT	100003	2	1
EPT	100003	3	1
EFT	100003	4	1
EFT	100003	5	1
U	100003	6	.7142857
EFT	100003	7	.7857143
N	100003	8	.6111111
EPT	100003	9	.6888889
EPT	100003	10	.7454545
N	100003	11	.6212121
N	100003	12	.525641
N	100003	13	.4505495

Application

Data & Methods

- **Data:** German Socio-Economic Panel (GSOEP): 1984-2005

- **Sample**: Men and women who experienced unemployment sometime over the period 1984 – 2005; (N=152,165 person-year observations; 271 months; 90 trimesters);

- **Approach**: Hybrid Models
  - Career quality is the DV;
  - Decomposing time-varying variables into individual-specific means and deviations from those means

Post unemployment career quality since first unemployment

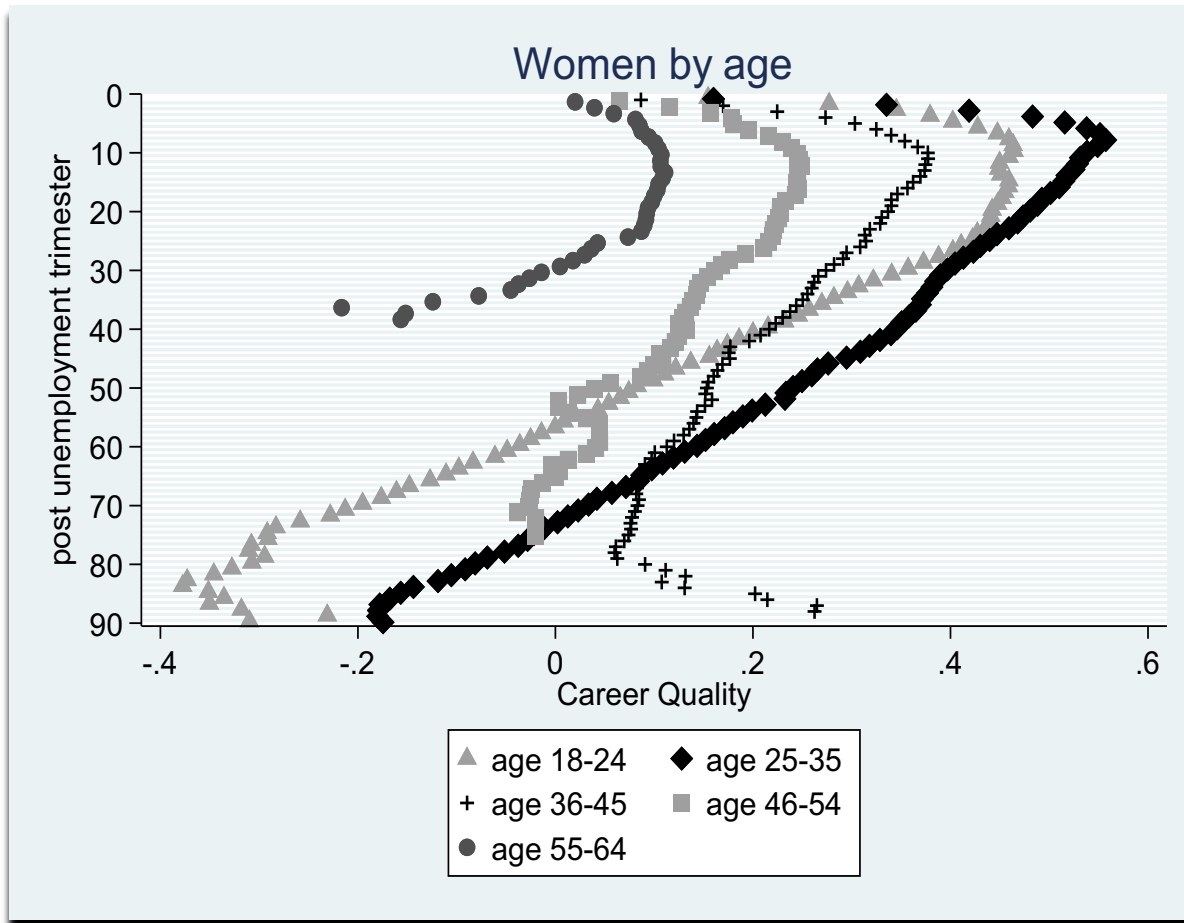**Coefficient estimates from hybrid models, by Sex.**
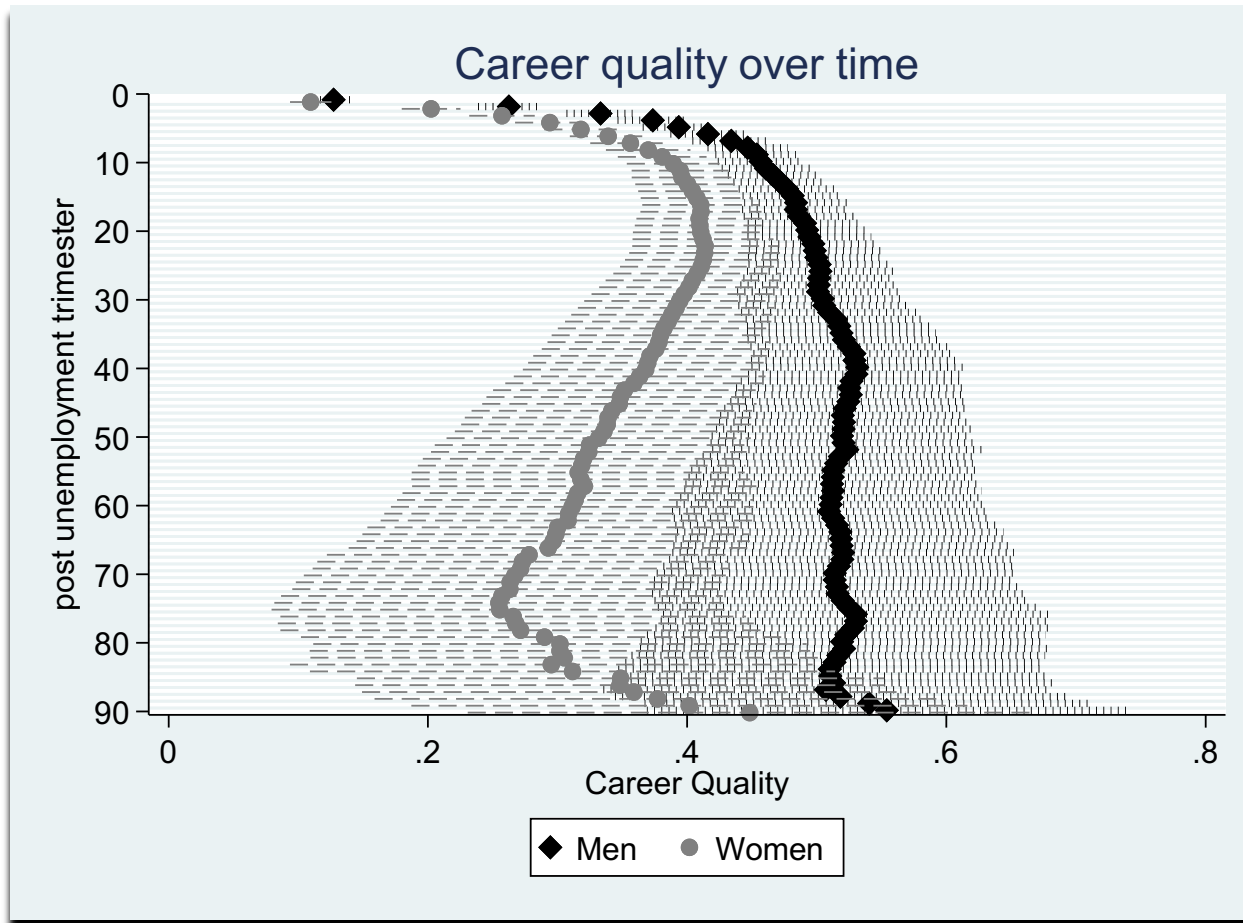
Career quality over time

Post unemployment career quality since first unemployment

Coefficient estimates from hybrid models, Men by Age,

Post unemployment career quality since first unemployment

Coefficient estimates from hybrid models, Women by Age,

Conclusions and limitations

- We find a "recovery" trend that applies to both men and women experiencing first unemployment at different ages.

- Recovery trends are not monotonic, but instead follow a non-linear trend such that the level of career quality first increases, then slows down and eventually stops.

- Women's recovery in career quality is slower than that of their male counterparts.

- Younger men (18-25) and women (before the ages of 35) are more negatively impacted by unemployment compared to those experiencing unemployment at older ages.
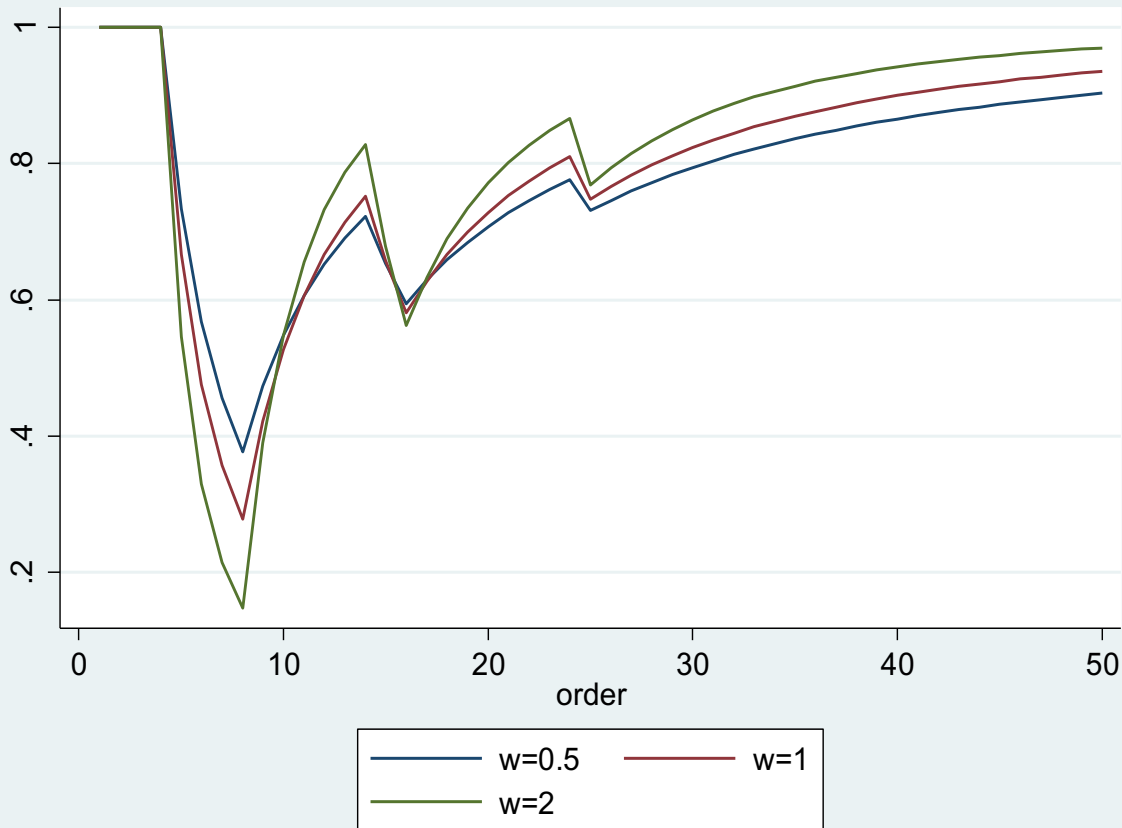
Conclusions and limitations

- Our measure of career success:

    - does not account for other employment characteristics

    - is not suited for career sequences that are more varied and with more than two categories

APPENDIX

Behavior of Υ^w for different w

$$x = S^4 F^4 S^6 F^2 S^8 F^1 S^{25}$$

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Data Management

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EPT	100002	4
EPT	100003	1
EPT	100003	2
EPT	100003	3
EFT	100003	4
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Data Management

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EPT        100002     2          1
EPT        100002     3          1
EPT        100002     4          1
EPT        100003     1          1
EPT        100003     2          1
EPT        100003     3          1
EFT        100003     4          1
EFT        100003     5          1
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EPT        100003     10         .7454545
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N          100003     12         .525641
N          100003     13         .4505495
```

Position weight

- w is a non-negative scaling factor fixing the cost of the non desirable attribute and the rate of recovery from undesirable episodes;

- If $w = 0$, $\Upsilon^0(x^n)$ $\dfrac{f(S)}{n}$

= the fraction of successes – regardless of their position in a sequence;

- If $w = 1$, $\Upsilon^1(x^n) = \dfrac{\sum_i p_i}{\sum_i i} = \dfrac{\sum_i p_i}{n(n+1)/2}$