Coming of Age in Troubled Times: The Impact of Economic Recessions on the Transition to Adulthood

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Economic Conditions and the Structuring of the Life Course

- A central premise of life course research is that human development occurs in historical context
  - Stretches from Thomas and Znaniecki to C.W. Mills to Elder to Modell to Hogan to Furstenberg
    - This involves both broad sociocultural conditions, as well as the impact of unique historical events
    - Historical conditions provide an environment of opportunity and constraint that shapes pathways of the life course
- In the contemporary era, there is increased attention to the "new" economy and its implications for the life course
  - The transition to adulthood has been the object of particular attention

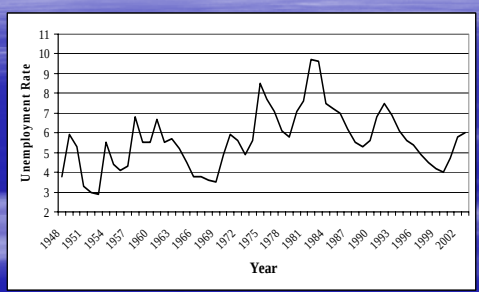
Economic Conditions and the Structuring of the Life Course

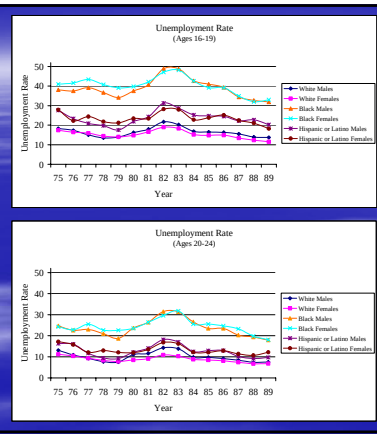
- Against this backdrop, there are a number of open questions
  - There really are no current assessments of the impact of changing economic contexts on the transition to adulthood
    - Almost all work predates the 1973 Oil Crisis that signaled the onset of the "new" economy
  - There has been no attempt to formally model the life course and examine the impact of economic context in a multi-dimensional way
  - Theoretical development is also lacking
    - There is no general theory that links the unfolding life course, social location, and economic context
    - There is no specific theory that indicates how exactly the life course is re-structured and for whom it is restructured

Recessions and the "New" Economy

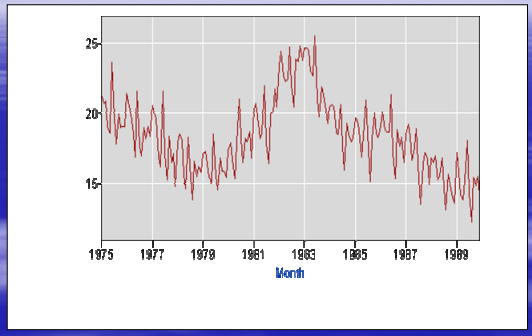
- The "new" economy has many features that have implications for life course research
  - Of particular significance is the increased frequency of downturns in the business cycle
  - This is characterized by "spikes" in the unemployment rates
    - Typically short-term (less than 3 years in duration) but occurring at irregular intervals
  - The recession of 1982-1983 is particularly noteworthy
    - Very high levels of unemployment
    - Particularly stratified by age
    - Further stratified by race and sex
    - Signaled the end of the post-war economic boom

Rates of Unemployment in the US, 1948-2004





Monthly Unemployment Rate 16-19 year olds, US.



A Structural Theory of the Life Course

- The life course can be seen as a structure of embeddedness
  - Individuals embedded in roles, roles embedded in role configurations, role role configurations embedded in life paths, life paths embedded in broad social structures and socio-historical context
  - Following Sewell, these structures can be viewed as the outcome of **schema-resource nexuses**
    - Schema indicate the cultural templates for putting together social roles and role configurations over time
      - They shape the order and timing of roles over the life span
  - Schema vary in their legitimacy both within and across social groups
    - Includes societies (historical and cross-cultural), subcultures or social groups within societies (i.e., race, class, gender, cohort, region, nativity)

  - Variation in legitimacy, *for our purposes*, reflects variation in validation, a a cognitive orientation to binding rules
    - Indexes the "taken-for-grantedness" of particular life course structures;
    - Differs from earlier discussion of the cultural basis of the life course (e.g., Elder, Hogan, Marini, Settersten)

- A key element of a structural approach is that life course structures will be mutually constituted by schema and resources (Sewell, 1992)
  - Schema and resources are mutually reproducing
  - "If schema are to be sustained and reproduced over time…they must be validated by the accumulation of resources that their enactment engenders" (Sewell, 1992, p. 13).
    - Sets of schemas and resources constitute structures only when they mutually imply and sustain each other over time

- Roles, role configurations, life paths as resources
  - All roles have resource implications, short- and long-term
    - Includes capital, human capital, social capital, and cultural capital
  - Roles (configurations, life paths) are vehicles of resource accumulation and resource expenditure
  - Resource implications of roles depends on location in role configurations (joint occurrence of roles) and the life span (order and timing in the life course)
  - ***Roles, role configurations, and life paths are tied to other social structures with their own schema/resource nexuses***

- Implications for legitimacy
  - Validated life course structures are those tied to schema/resource nexuses that are mutually sustaining
  - Only structures that can and are reproduced by a social group group will be validated and have broad occurrence (i.e., "taken-for-grantedness")
    - Life course structures will have a population/demographic resonance to the extent that they are resource generating and schema reproducing reproducing
    - The reproduction of life course schema/resource nexuses is tied to schema-resource nexuses of other social structures
      - At a population level, stratification shapes life course structures
      - At an individual level, individual "gravities" towards a life course structures depend upon the availability/deployment of resources

Empirical Model: A Two-Stage Latent Class Approach

- To begin, $i(t)$ may denote a multidimensional matrix or cross-classification of a set of observed variables defining various states of some social roles at a specific age.
  - In studying the transition to adulthood, these would typically involve the presence or absence of various school, work, and family roles.
- Now let $m(t)$ represent the unobserved, *latent role configurations configurations* or *role configuration schema* at age t in which the the observed role configurations $i(t)$ are embedded.
  - These describe the fundamental set of cultural scripts for how the observed observed roles $i(t)$ may "go together" in a population.

- Finally, let *j* denote the unobserved life path schema in which the the age-graded set of unobserved role configuration schema *m*(*t*) are embedded.
  - Conceptually, these *latent life paths* give the fundamental set of cultural scripts for how to (attempt to) "put together" a life course in a population. population.
- Given a structure of embeddedness and considering the individual roles 1,…,*k* that make up the vector of observed roles roles *i*(*t*), the joint probability is given by

$$\pi_{i(1)\ldots i(T)m(1)\ldots m(T)j} = \left[\pi_{i(1)_1|m(1)}\cdots\pi_{i(1)_k|m(1)}\right]\cdots\left[\pi_{i(T)_1|m(T)}\cdots\pi_{i(T)_k|m(T)}\right]\pi_{m(1)j}\cdots\pi_{m(T)j}\pi_j$$

- To obtain estimates for these probabilities, latent class modeling techniques may be used.
- However, typical algorithms used to obtain full information maximum likelihood (FIML) estimates for latent class models dictate that we construct the entire transition matrix.
  - Considering even a small number of roles (e.g., five), simple simple coding of states (e.g., dichotomies), and a limited number of time periods (e.g., five), the full cross classification classification has $(2^5)^5$ or 33,554,432 cells.

- Estimation of the conditional probabilities involves two stages.
  - First, we obtain each set of probabilities by estimating latent class models models on the *T* cross-classifications of roles observed at each age *t*.
    - This produces estimated latent role configurations for each age *t*, as well as FIML estimates for the corresponding sets of probabilities.
  - Second, we then obtain conditional maximum likelihood (CML) estimates estimates for the set of parameters by estimating latent class models on realizations of the latent role configuration transition table.
    - The realization of this latent transition table is obtained through a "halfway implementation of the multiple imputation method" that uses probabilistic assignment using random draws from a uniform distribution.
- Once constructed, latent class models are estimated on this transition table. This generates estimates of *latent life paths* that link *latent role configurations* over time.

- Statistical Properties:
  - These conditional maximum likelihood (CML) estimates are consistent, asymptotically unbiased, and efficient in the local likelihood area defined by the first stage FIML estimates.
  - With sufficient random draws, asymptotic properties are more more likely to hold and have lower sampling variability than their FIML counterparts.
  - They will be superior from a measurement error standpoint to to the traditional approach (i.e., modal assignment). With sufficient random draws on each case, we completely account account for any measurement error in assigning cases to latent latent classes.

- Quantities of Interest
  - *Goodness-of-fit statistics* for both the first- and second-stage provide guidance on the number of latent role configuration and latent life paths that characterize the age-graded observed role configurations and transitions in the sampled population.
    - Indicates the extent of heterogeneity
  - *Conditional probabilities* of both observed roles given latent role configurations and role configurations given latent life paths
    - These provide descriptions of roles embedded within role configuration schema and role configuration schema embedded within life path schema
  - *Latent class probabilities* indicate the dominance (legitimacy) or density of a particular latent role configuration or life paths
    - Indicate the proportion of a sampled population that is characterized by a given latent role configuration or life path

  - *Expected role probabilities* given latent life paths can be calculated using using simple algebraic manipulation of conditional probabilities across stages
    - $\pi_{i(t)_k|j} = \sum_{m(t)} \pi_{i(t)_k|m(t)}\pi_{m(t)j}$
  - These reveal the across-age distributions of role probabilities within each each latent life path. They show:
    - 1) the dynamic relationship among social roles over time.
    - 2) the probabilistic occurrence, order and timing of social roles over time.
    - 3) heterogeneity in life paths and the variable character of life course schema schema through the temporal process by which lives unfold over time.
  - That is, they explicitly reveal the underlying structure of the life course.

Impact of Economic Context on the Transition to Adulthood

- Schema should be generally resilient
  - Economic recessions may "shuffle" role configurations at key ages, but should "correct" themselves at later ages to conform to dominant schema
    - Reflects the schema-resource nexus that provides the foundation for life course structures
- The impact of economic recessions should vary by schema
  - Some schema will be extremely "resilient," others may be more susceptible to change
    - Reflects the specific role that employment plays in the transition to adulthood and its interlock to other social roles

- Collective validation should be more variable
  - Individuals/Groups will adopt (and reproduce) particular life course structures in economic recessions in light of problems in realizing particular life path schema
    - At a societal level, the distribution of the population across life course structures will change
    - At an individual level, (global) gravities towards life course schema will change
- Also expect variation by race and sex
  - Race-sex specific schema are variably connected to employment and recessionary conditions
  - Economic recession have greater or lesser effects on different groups
    - Need to specify this more formally…

Relation to existing theoretical work

- This perspective may be a flat alternative to those who argue that life courses adjust to socio-economic conditions, particularly in the short-term
  - Fussell's dilemma...
- This perspective may provide specificity in understanding for whom or for what life paths economic recessions matter
  - This furthers our understanding of the structural embeddedness of individuals, roles, role configurations, life paths, social location, and socio-historical context

The 1980's Recession as "Natural Experiment"

- In 1979, the Bureau of Labor Statistics began a second phase of their National Longitudinal Surveys
  - A stratified sample of 12,686 males and females ages of 14 to 22
    - Over-sampled African-American, Hispanics, and "poor" whites
  - Data were collected annually through 1994 and bi-annually thereafter
- The combination of several age-cohorts and the longitudinal design create "windows" of exposure to the 1980s Recession

Cohort by Time Period Selections, NLSY79.

Cohort	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
				Recession								
Recessionary I	14	15	**16**	17	**18**	19	**20**	21	**22**	23	**24**	25
Recessionary I	15	16	**17**	18	**19**	20	**21**	22	**23**	24	**25**	26
Recessionary II	**16**	17	**18**	19	**20**	21	**22**	23	**24**	25	26	27
Recessionary II	**17**	18	**19**	20	**21**	22	**23**	24	**25**	26	27	28

Subsample and Cohort Frequencies.

	Cohort I	Cohort II	Total
Non-white Females	457	592	1049
Non-white Males	485	563	1048
White Females	580	753	1333
White Males	625	710	1335
Total	2147	2618	4765

Measures

- Key Markers of the transition to adulthood
  - School – whether the respondent reported being in school during the interview year (yes/no)
  - Employment – involvement in paid labor (full-time [35 or more hours/week], part-time [1-34 hours/week], not employed)
  - Marriage – respondent's marital status (ever married/other)
  - Parenthood – respondent has a child (any children/no children)

Goodness of Fit

Table: Goodness of fit statistics, LRC, White Males 14-15

Year	Model	L^2	df	p-value	ID	BIC
1981	I					
	II	26.796	14.000	0.020	0.014	-63.333
	III	**3.827**	**11.000**	**0.975**	**0.004**	**-66.988**
	IV	3.826	7.000	0.800	0.004	-41.238
1983	I					
	II	81.998	14.000	0.000	0.066	-8.131
	III	**9.019**	**8.000**	**0.341**	**0.010**	**-42.483**
	IV	13.400	5.000	0.020	0.012	-18.788
1985	I					
	II	148.038	13.000	0.000	0.189	64.347
	III	**13.363**	**7.000**	**0.064**	**0.018**	**-31.701**
	IV	13.083	2.000	0.001	0.017	0.208
1987	I					
	II	67.099	12.000	0.000	0.108	-10.154
	III	**18.606**	**8.000**	**0.017**	**0.029**	**-32.896**
	IV	17.927	1.000	0.000	0.027	11.489
1989	I					
	II	34.023	12.000	0.001	0.055	-43.230
	III	**10.855**	**8.000**	**0.210**	**0.018**	**-40.647**
	IV	5.119	4.000	0.275	0.015	-20.632

Note: Preferred model in bold

Table: Goodness of fit statistics, LRC, Non-white Females 14-15

Year	Model	L^2	df	p-value	ID	BIC
1981	I					
	II	**9.338**	**14.000**	**0.809**	**0.017**	**-76.407**
	III	9.201	8.000	0.326	0.017	-39.797
	IV	1.512	8.000	0.993	0.004	-47.486
1983	I					
	II	40.631	13.000	0.000	0.080	-38.990
	III	**11.868**	**8.000**	**0.157**	**0.034**	**-37.129**
	IV	1.088	6.000	0.982	0.012	-35.661
1985	I					
	II	74.772	12.000	0.000	0.132	1.275
	III	**26.812**	**6.000**	**0.000**	**0.088**	**-9.936**
	IV	6.443	0.000	1.000	0.018	6.443
1987	I					
	II	**16.841**	**12.000**	**0.156**	**0.066**	**-56.655**
	III	13.325	8.000	0.101	0.055	-35.673
	IV	1.427	1.000	0.232	0.011	-4.698
1989	I					
	II	30.461	12.000	0.002	0.085	-43.035
	III	17.620	6.000	0.007	0.032	-19.128
	IV	10.728	0.000	1.000	0.022	10.728

Note: Preferred model in bold

Number of Classes for Latent Role Configurations

Number of Classes for Latent Role Configurations.

		White Females		Non-white Females		White Males		Non-white Males	
		Cohort 1	Cohort 2	Cohort 1	Cohort 2	Cohort 1	Cohort 2	Cohort 1	Cohort 2
Ages	*Years*								
16/17	81/79	2	2	2	3	2	2	2	2
18/19	83/81	3	3	3	3	3	2	3	2
20/21	85/83	3	3	3	3	3	3	3	4
22/23	87/85	3	3	2	3	3	3	3	4
24/25	89/87	3	3	3	3	3	3	2	2

Characterizations of Life Course Structures: Conditional and Latent Class Probabilities

Table A1. Latent Role Configurations and Probabilities by Age, Non-white Females, Cohort 1.

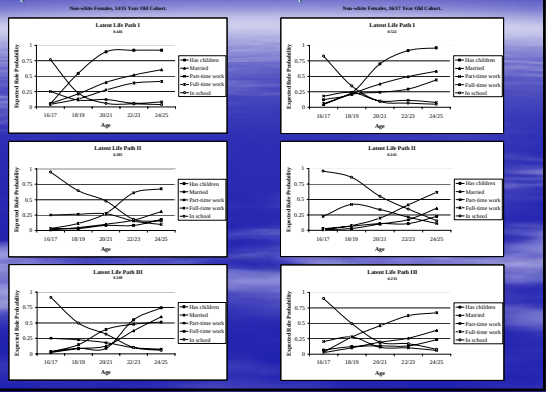
	Ages 16-17		*Ages 18-19*			***Ages 20-21***			*Ages 22-23*		*Ages 24-25*		
	I	**II**	I	II	III	**I**	**II**	**III**	I	II	I	II	III
Population Probability	**0.857**	**0.143**	0.409	0.327	0.264	**0.415**	**0.314**	**0.271**	0.610	0.390	0.408	0.315	0.277
Conditional Probability given Observed Roles													
Student	**1.000**	**0.003**	0.895	0.133	0.033	**0.023**	**0.722**	**0.000**	0.050	0.186	0.039	0.035	0.179
Full-time Worker	**0.028**	**0.092**	0.040	0.096	0.317	**0.275**	**0.105**	**0.628**	0.388	0.616	0.220	0.757	0.679
Part-time Worker	**0.253**	**0.246**	0.317	0.054	0.147	**0.108**	**0.407**	**0.000**	0.061	0.157	0.111	0.030	0.110
Single	**1.000**	**0.755**	1.000	0.717	0.853	**0.576**	**0.941**	**0.822**	0.482	0.839	0.513	0.154	0.806
Married	**0.000**	**0.246**	0.000	0.283	0.147	**0.424**	**0.059**	**0.178**	0.518	0.161	0.487	0.846	0.194
Parent	**0.026**	**0.138**	0.005	0.836	0.000	**0.963**	**0.101**	**0.007**	0.920	0.004	0.984	0.729	0.037

Note. Latent role configurations are ordered from highest to lowest densities, within ages.

Table A2. Latent Life Path Probabilities, Non-white Females, Cohort 1.

		Latent Life Paths		
		I	II	III
Population Probability		0.446	0.285	0.269
Latent Role Configurations				
Ages 16-17	**I**	**0.234**	**0.051**	**0.086**
	II	**0.766**	**0.949**	**0.914**
Ages 18-19	I	0.651	0.027	0.104
	II	0.152	0.708	0.527
	III	0.197	0.265	0.369
Ages 20-21	**I**	**0.923**	**0.014**	**0.008**
	II	**0.052**	**0.663**	**0.441**
	III	**0.025**	**0.324**	**0.551**
Ages 22-23	I	1.000	0.023	0.596
	II	0.000	0.977	0.404
Ages 24-25	I	0.635	0.032	0.435
	II	0.344	0.161	0.427
	III	0.021	0.808	0.138

Expected Role Probabilities and the Impact of Economic Recessions



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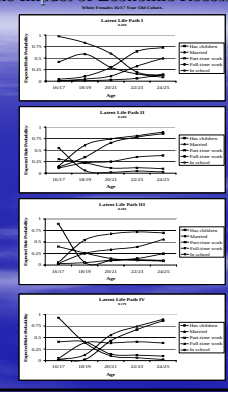

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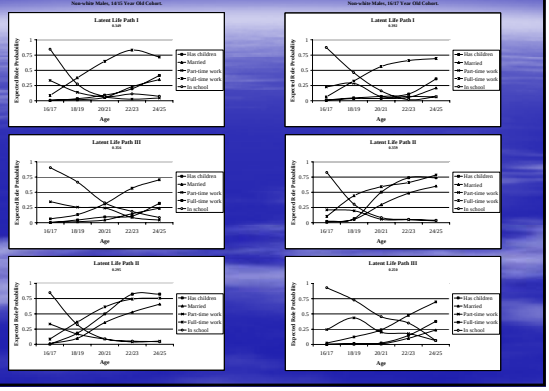

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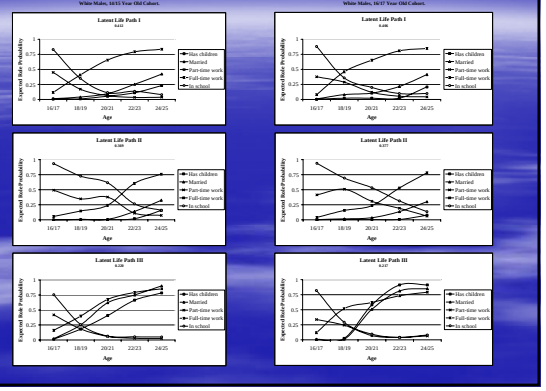
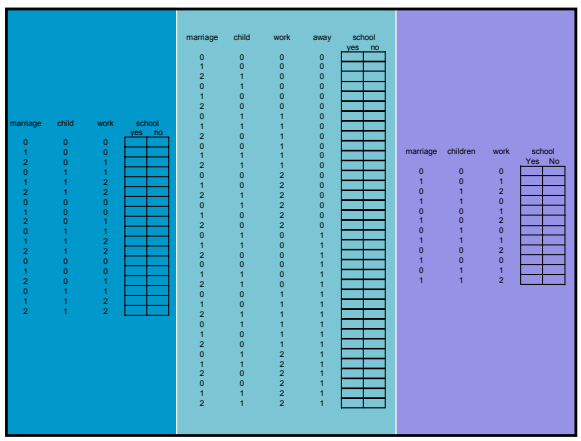


Sensitivity Analyses

- Separately estimated LRC's and LLP's for WM, NWM, WF, & NWF by cohort (ages 14, 15, 16, 17, 18)
- Re-configured variables and models
  - Added "away" variable
  - Collapsed "marriage" variable
- Scrambled start values for all groups and re-estimated models
- Replicated Macmillan & Eliason (nd) using separate start values
- Pulled random sub samples of 75%, 50%, 25%, 10%, 5%, and 1% and assessed robustness of LCP's and CP's.
- Simultaneous Group Models



Extending the Two-stage Latent Class Model

- Adapt this procedure to the study of race-sex-cohort variation in latent structures of the life course by considering goodness of fit of homogeneous and heterogeneous models
  - Homogenous models have parameters that are "fixed" to be equal across cohorts
    - Constrains latent role configurations and latent life paths to be the same
  - Heterogeneous models do not constrain parameters and cohorts are free to vary in the character and content of their latent life course structures
  - Fit to the data indicates the degree to which either specification provides a better or worse fit to the data

Comparisons of Constrained and Unconstrained Models

- Goodness of Fit Statistics

Goodness of Fit Statistics, Simultaneous Group Model, Non-white Females.

Sample	Class	Model	L^2	df	p-value	ID	BIC	ΔL^2	Δdf	Δp-value	conclusion
BF-16	II	**Hetero**	**29.674**	**27.000**	**0.329**	**0.021**	**-158.127**	31.574	8.000	0.000	sig-hetero
	II	Homo	61.248	35.000	0.004	0.047	-182.197				
	III	Hetero	28.181	17.000	0.043	0.017	-90.065	19.079	12.000	0.087	nonsig-homo
	III	Homo	47.260	29.000	0.018	0.038	-154.452				
BF-18	II	Hetero	81.170	25.000	0.000	0.077	-92.720	55.307	9.000	0.000	sig-hetero
	II	Homo	136.477	34.000	0.000	0.124	-150.014				
	III	**Hetero**	**26.922**	**15.000**	**0.029**	**0.033**	**-77.412**	36.801	13.000	0.000	sig-hetero
	III	Homo	63.723	28.000	0.000	0.078	-131.034				
BF-20	II	Hetero	151.464	24.000	0.000	0.133	-15.480	7.898	10.000	0.639	nonsig-homo
	II	Homo	159.362	34.000	0.000	0.131	-77.138				
	III	Hetero	36.069	13.000	0.001	0.052	-54.354	9.777	14.000	0.778	nonsig-homo
	III	**Homo**	**45.845**	**27.000**	**0.013**	**0.059**	**-141.956**				
BF-22	II	Hetero	75.808	24.000	0.000	0.085	-91.126	17.181	10.000	0.070	nonsig-homo
	II	Homo	92.990	34.000	0.000	0.097	-143.500				
	III	Hetero	19.198	12.000	0.084	0.042	-64.269	14.713	15.000	0.472	nonsig-homo
	III	**Homo**	**33.911**	**27.000**	**0.169**	**0.058**	**-153.890**				
BF-24	II	Hetero	57.397	24.000	0.000	0.066	-109.538	1.882	10.000	0.997	nonsig-homo
	II	Homo	59.278	34.000	0.005	0.068	-177.212				
	III	Hetero	28.552	14.000	0.012	0.049	-68.826	3.850	13.000	0.993	nonsig-homo
	III	**Homo**	**32.402**	**27.000**	**0.218**	**0.051**	**-155.399**				

Note: 2/3, 3/3, 3/3, 2/3, 3/3

Key Findings

- Some evidence that recessionary conditions influence the timing of transitions but these are specific to certain LPs and certain race-sex groups
  - Delayed parenting [NWF (LLP I & III) and WF (LLP III(II) & IV)]
  - Slower movement into FTE [NWF (LLP II) and NWM (LLP I)]
    - To be expected, but race-sex variation is not
  - Delayed exit from schooling (i.e., warehousing) [NWF (LLP I & II) and NWM (LLP I & III)]
    - More rapid exit from schooling [WF (LLP I(III))]

- Little evidence that the interlock of social roles in the transition to adulthood are shaped by recessionary conditions
  - Virtually no cohort variation in latent life paths involves changes in the probabilistic order of roles
    - School to employment transitions are altered in minimal ways
    - Employment and marriage and marriage and parenthood are unaffected
    - Even the multifaceted transition (younger cohort of NWF) is not "re-ordered"
- Some evidence that collective validation varies across cohorts given life paths
  - Moderate evidence for NWF and NWM
  - Strong evidence for WF
- Recessionary conditions have virtually no impact on the transition to adulthood among WMs
  - Life paths are virtually identical in expected role probabilities, the interlock of role trajectories over time, and expected population probabilities

Conclusions and Implications

- In general, the influence of recessionary conditions on the transition to adulthood highly variable depending on both the immediate life course context (i.e., latent life path) and broader social position (i.e., race-sex)
- Life Course Theory
  - Life Course Development in Socio-historical Context
    - Focus on large scale patterns of social change, rather than short-term historical events
      - Events are still important but they must have particular features
- Cumulative Continuity and "Turning Points"
  - Is there a need for a further concept of life path "gravities"?
- Stratification in the Life Course
  - Stratification becomes a much more complex story when we take account of 1) the structure of embeddedness; and 2) the intersection of age, period, and cohort

Conclusions and Implications (cont'd)

- The "Individualization" of the Life Course
  - Schema of the life course are quite resilient and highly 'structured' rather than 'individualized'
- Economic Recessions and the Structuring of the Life Course
  - The key issue appears to be for whom and for what scripts do economic recessions matter
- Connections between school, work, and family
  - Have family roles become decoupled from school and work?
- General Stratification
  - Can conceive of stratification processes as showcased by the structure of embeddedness that we describe
    - Provides a dynamic, contingent context for thinking about social stratification

Appendix: Goodness of Fit Statistics, Latent Life Paths

Latent Life Path Selection.

Sample	Model	L^2	df	p-value	ID	BIC	Sample	Model	L^2	df	p-value	ID	BIC
BF14	I						BF16	I					
	II	121.162	90.000	0.016	0.178	-430.059		II	190.874	142.000	0.004	0.206	-715.584
	III	**61.865**	**83.000**	**0.960**	**0.112**	**-446.484**		**III**	**132.827**	**133.000**	**0.488**	**0.142**	**-716.180**
	IV	29.540	76.000	1.000	0.058	-435.936		IV	87.692	124.000	0.994	0.104	-703.862
	V	23.430	68.000	1.000	0.048	-393.048		V	73.625	116.000	0.999	0.095	-666.862
BM14	I						BM16	I					
	II	136.194	90.000	0.001	0.181	-420.389		II	165.692	108.000	0.000	0.190	-518.354
	III	**87.040**	**81.000**	**0.303**	**0.125**	**-413.876**		**III**	**103.085**	**98.000**	**0.343**	**0.123**	**-517.624**
	IV	67.402	75.000	0.722	0.094	-396.409		IV	70.862	89.000	0.921	0.096	-492.843
	V	48.839	67.000	0.953	0.079	-365.499		V	54.409	82.000	0.992	0.085	-464.960
WF14	I						WF16	I					
	II	271.326	144.000	0.000	0.253	-644.950		II	286.770	142.000	0.000	0.239	-653.847
	III	133.099	136.000	0.554	0.151	-732.273		III	155.121	133.000	0.092	0.155	-725.880
	IV	**56.842**	**130.000**	**1.000**	**0.071**	**-770.352**		**IV**	**90.882**	**124.000**	**0.989**	**0.092**	**-730.502**
	V	45.556	123.000	1.000	0.059	-737.097		V	79.048	114.000	0.995	0.085	-676.095
WM14	I						WM16	I					
	II	227.283	143.000	0.000	0.210	-693.316		II	200.742	91.000	0.000	0.206	-396.697
	III	**115.267**	**136.000**	**0.901**	**0.103**	**-760.267**		**III**	**92.845**	**83.000**	**0.216**	**0.123**	**-452.072**
	IV	60.702	128.000	1.000	0.078	-763.330		IV	70.162	76.000	0.667	0.100	-428.798
	V	42.869	120.000	1.000	0.056	-729.661		V	63.359	70.000	0.700	0.085	-396.210