Region of Socialization vs. Region of Current Residence and Health Outcomes in Mid-to-Late Adulthood in the U.S.[1]

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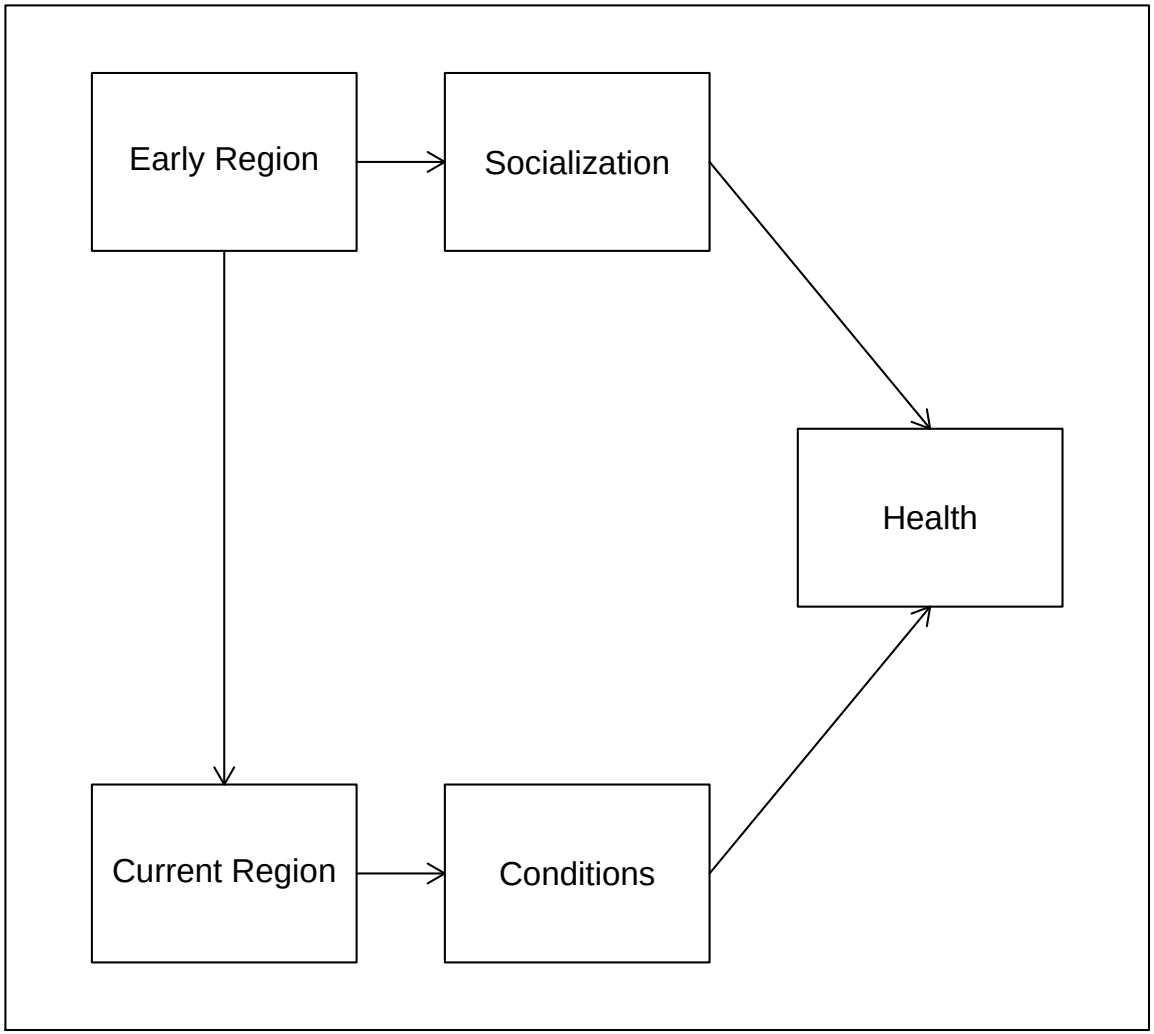
Background

- Everyone includes region as a control in US data/research
  - Usually an indicator for "South"
  - Usually no real consideration of meaning
  - In contrast: rural/urban imbued with meaning (e.g., "inner cities")
- Should consider meaning of region: why do we include it?
  - Why should region of residence impact health?
  - If cultural explanation, then:
  - Does it matter (more) where one lives now or earlier in life?
- Not much literature specifically on US regions
  - Most in public health on single diseases: assumes culture (like diet)
  - In demography: assumes local conditions (like physician density)

Background, continued

- Diet and physician density are very different: socialization (internal) vs. environmental conditions (external)
- Considering region at birth and current region provides some leverage in understanding regional effects
- Augments two bodies of literature in sociology & demography
  1. Early life effects on later life health (socialization into culture)
  2. Neighborhood effects (but region is better measure than neighborhood: culture and conditions are broader)

Conceptual Schema for Influence of Region



Today:

- Examine effects of two measures of region (birth and current) on several broad health outcomes
- Does birth region predict health outcomes in midlife and beyond?
- Does current region?
- Are results consistent across the two measures and across health outcomes?
- Which is more important?

Data

- HRS 1998-2010 (RAND file)
- Only folks age 50+ and interviewed in 1998
- Only folks born in the US who do not move abroad at any point (very few excluded—~ 50)
- Only primary respondents (no spouses, kids, etc.)
- initial $n = 11,403$

Variables

Background	Measure	Descriptives
Age	years	68.5(11.0)[50,106]
Cohort	birth year-1900	[-8,48]
Male	dummy	46%
Black	dummy	16.9%
Other Race	dummy	1.6%
Health (in 1998 only)		
SRH	E=1/VG/G/F/(P=5)	2.96(1.19)[1,5]
ADLs	count (1+)	.50(1.24)[0,6]
Conditions*	count (3+)	1.72(1.37)[0,8]
CESD	symptoms (3+)	1.63(1.92)[0,8]
Mortality	indicator	42.9% ('98-'10)

*CVD, stroke, cancer, lung disease, hypertension, arthritis, diabetes, psychiatric problems

Methods

- Descriptive: regional transitions
- Random Effects models on person-wave (2 yr.) data ($n = 57,545$ maximum person-waves)
- Discrete time logit (hazard) models for mortality
- Multistate life tables (GSMLT: 2 yr. intervals, multiple spells—up to 6 p.p., w/ right censoring)
  - Estimate two outcome states (health/death) via discrete time bivariate probit using Gibbs sampling
  - Compute predicted values for transition probability matrices for given covariate profile
  - Generate life tables from TP matrices and summarize

Regional Transitions

- Region measured two ways: 9-category and 4-category Census divisions:

4 category measure	9 category measure
Northeast (NE)	NE, MA
Midwest (MW)	ENC, WNC
South (S)	SA, ESC, WSC
West (W)	MT, PA

- Transitions: birth-adolescence-'98,'00,'02,'04,'06,'08,'10
- Originally included adolescent region: 93% do not move birth-adolescence (9 category)
- 9 category: 94.4% do not move from 1998-2010
- Key transition:birth-1998
  - 9 category: 34% move birth-1998
  - 4 category: 27% move birth-1998

Regional Transitions, continued

	1998				
Birth	NE	MW	S	W	T
NE	1516 (63)	125 (5)	581 (24)	167 (7)	2389 21%
MW	57 (2)	2327 (69)	479 (14)	510 (15)	3373 30%
S	247 (5)	512 (11)	3612 (77)	296 (6)	4667 41%
W	12 (1)	50 (5)	75 (8)	832 (86)	969 9%
Total	1832 16%	3014 26%	4747 42%	1805 16%	11,398 100%

- Maximum heterogeneity in region: $.25^4$
- percent of maximum at birth: .55; at 1998: .72

Results of Random Effects Regression Models

Region	SRH		ADLs		Conditions		Dep. Symptoms	
	S	T	S	T	S	T	S	T
Birth								
MW	.022	.049	.006	.022	.024	.058	-.11*	-.06
S	.29***	.32***	.21***	.26***	.24***	.27***	.26***	.28***
W	-0.03	.03	.051	.084	-.085	-.02	-.03	.07
R^2	.06		.09		.10		.04	
ρ	.58		.59		.84		.53	
Current								
MW	-.002	-.04	-.005	-.025	-.021	-.05	-.10*	-.07
S	.10***	-.05	.049	-.069*	.034	-.05	.09*	-.04
W	-.05	-.08*	-.006	-.05	-.09**	-.10*	-.10*	-.13*
R^2	.05	.06	.09	.09	.10	.10	.03	.04
ρ	.59	.59	.60	.60	.84	.84	.53	.53

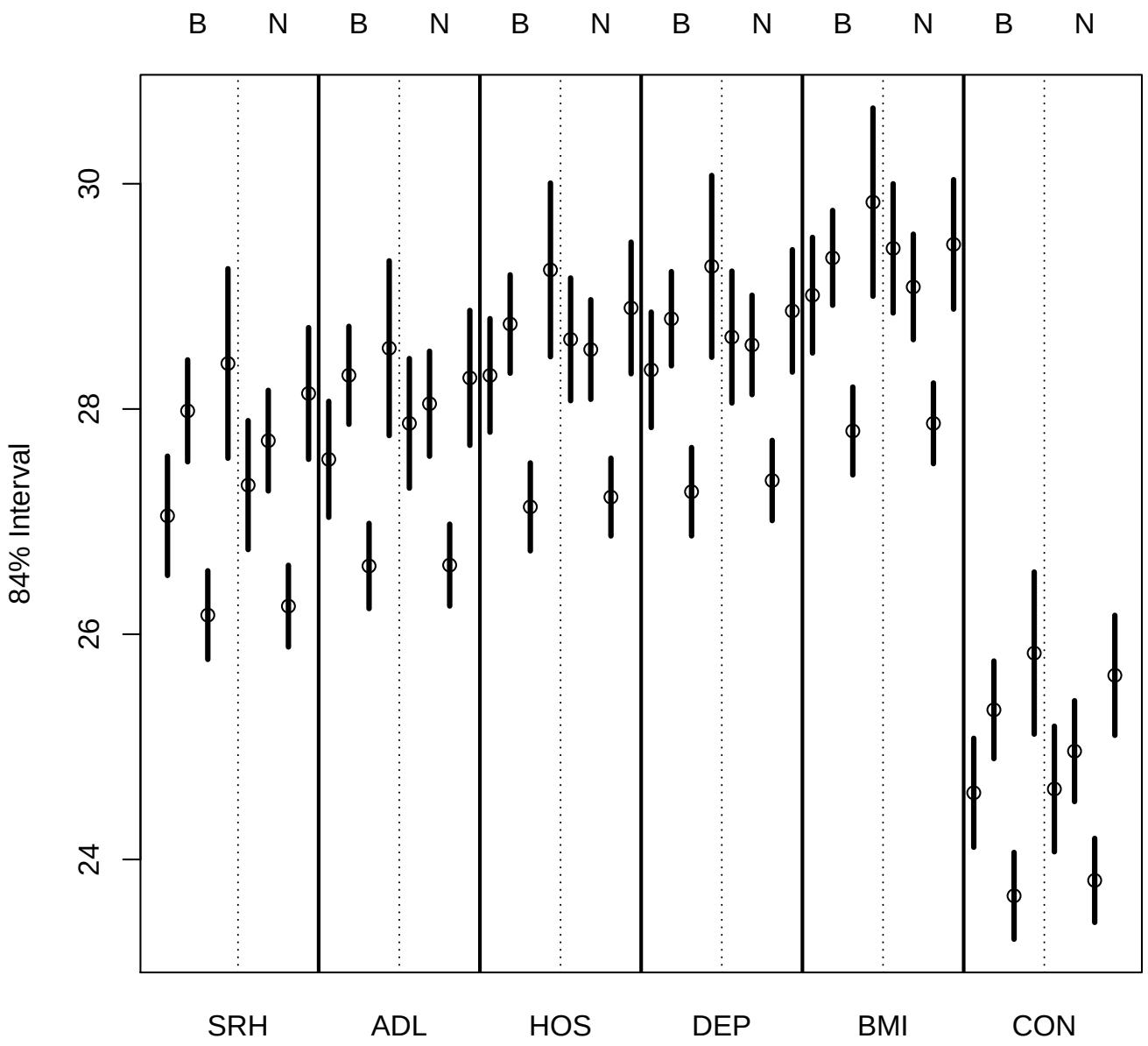
Note: Age, cohort, sex and race controlled. NE is reference region.

Results of Discrete Time Logit Models

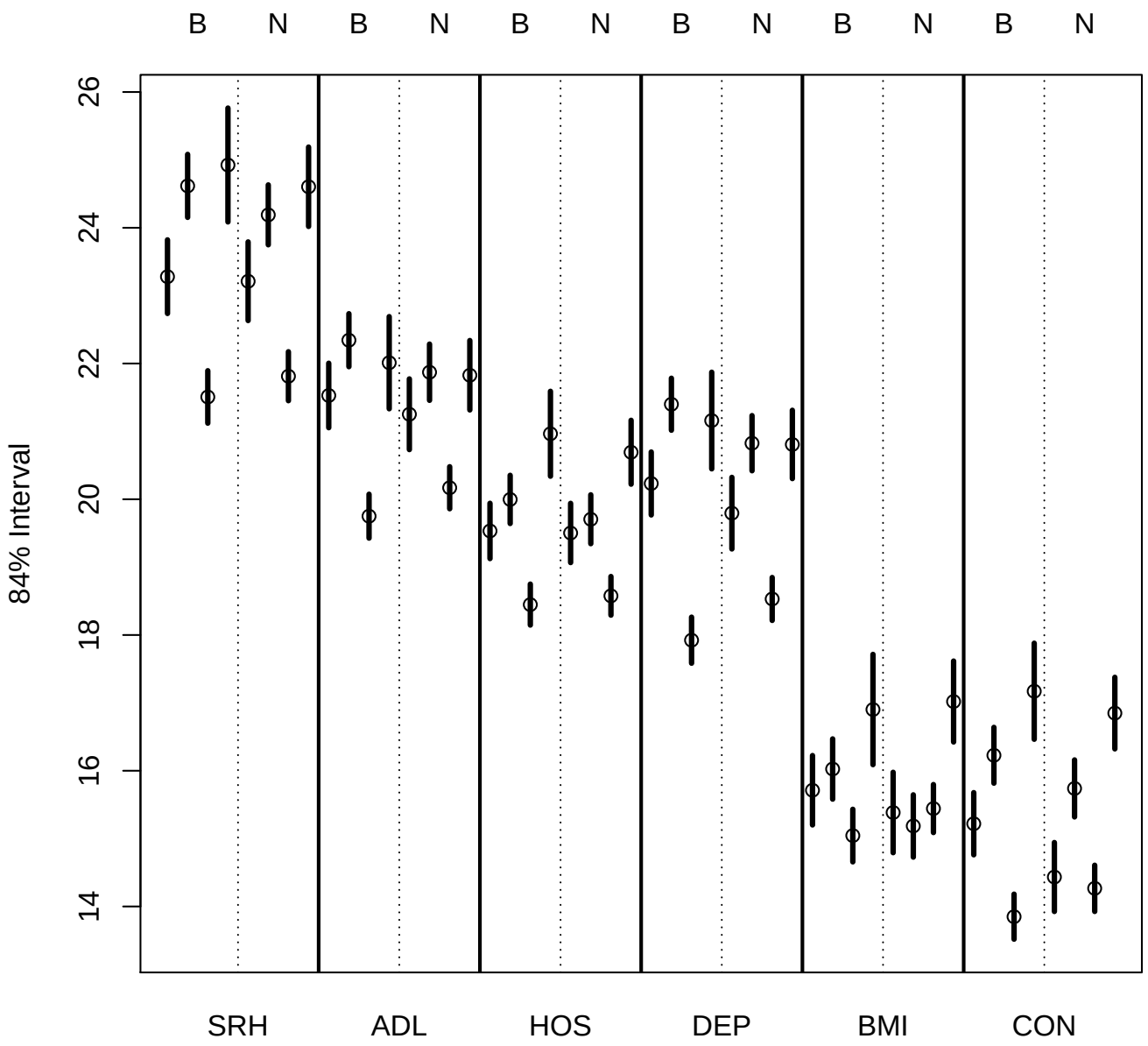
Region	Mortality S	Mortality T
Birth		
MW	-.04	-.09
S	.13**	.05
W	-.07	-.10
R^2	.13	
Current		
MW	.03	.09
S	.16**	.14*
W	.01	.07
R^2	.13	.13

Note: Age, cohort, sex and race controlled. NE is reference region.

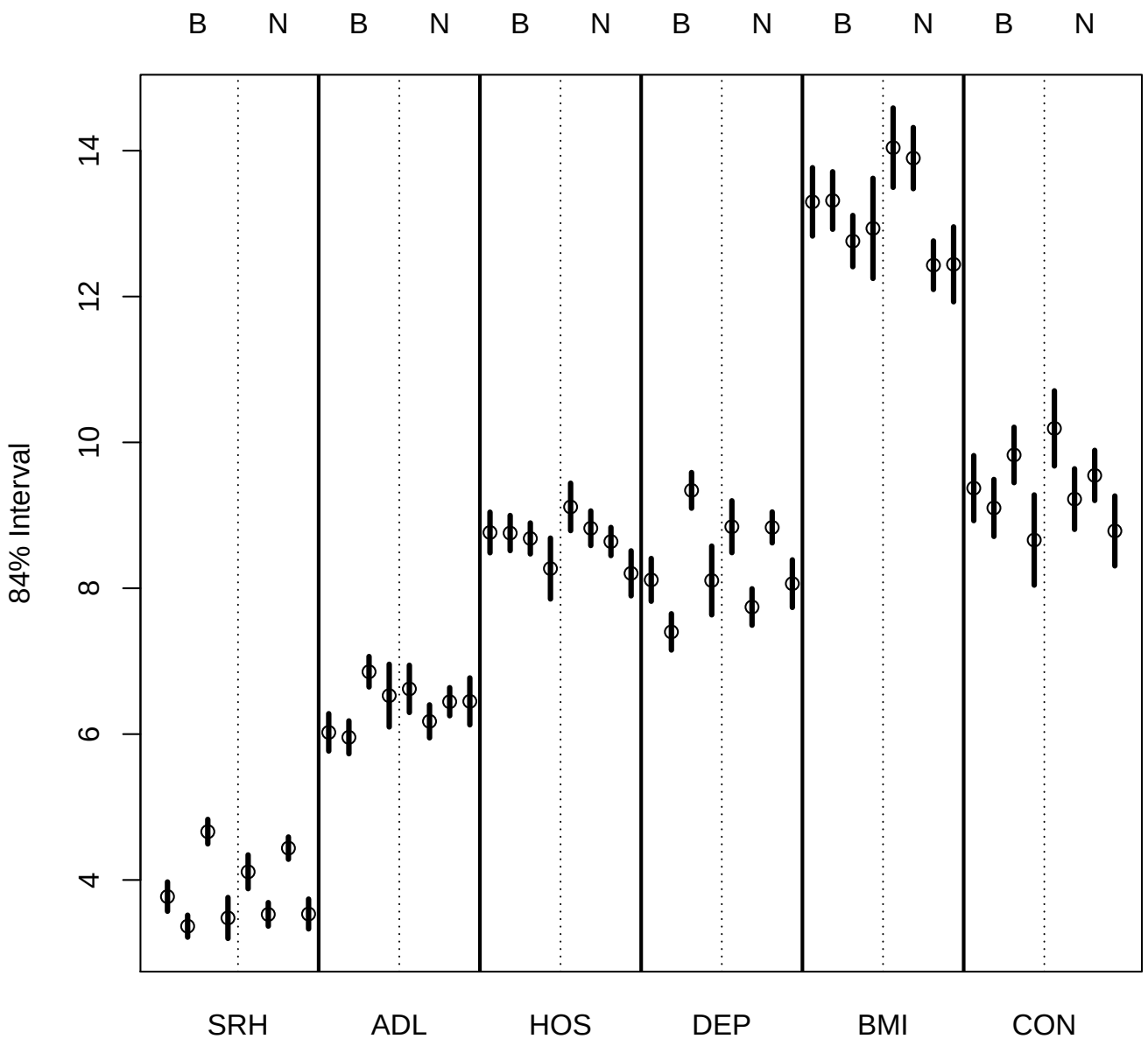
Multistate Results: TLE



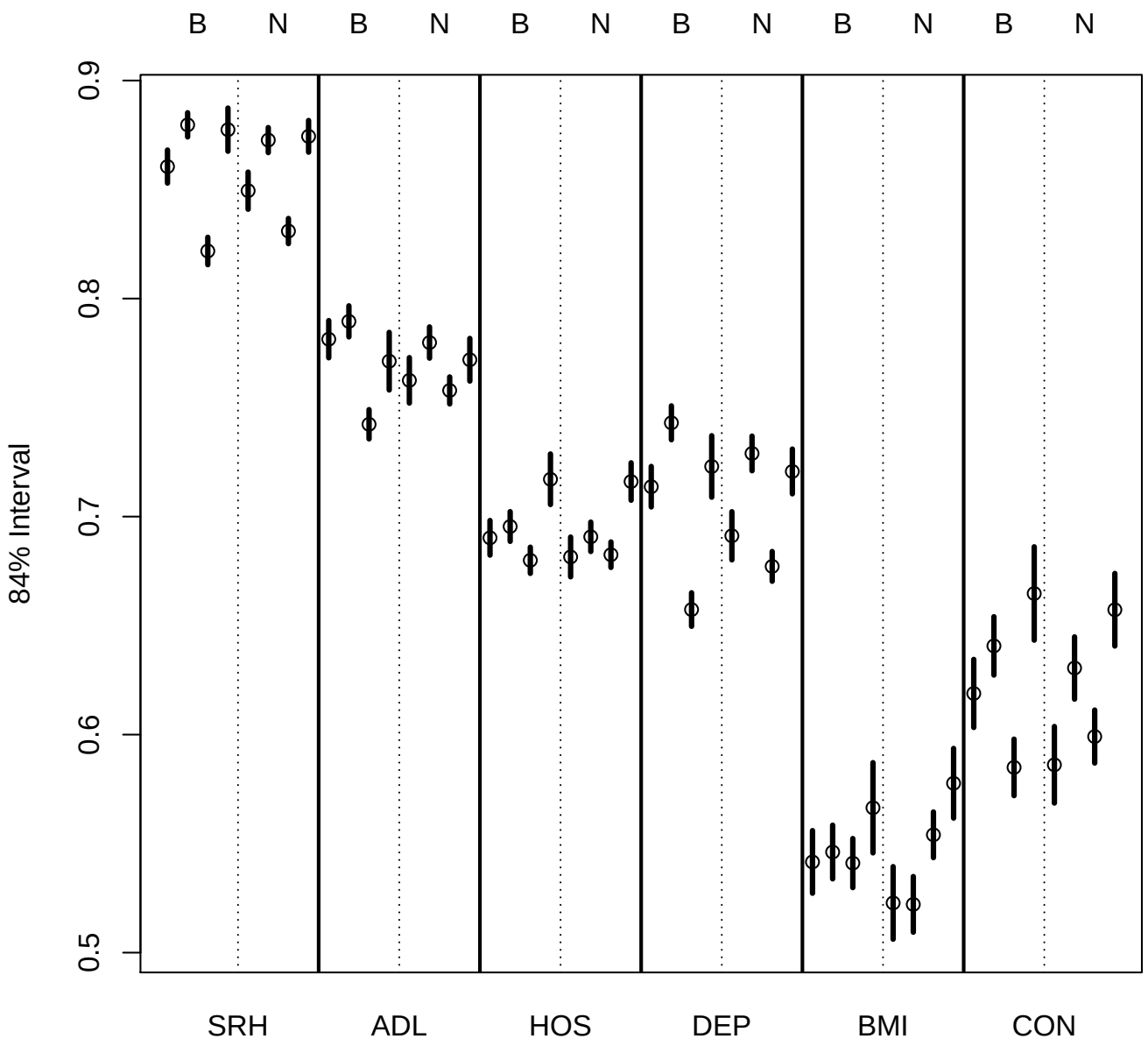
Multistate Results: HLE



Multistate Results: ULE



Multistate Results: PLE



Summary

- South stands out as being generally worse than other regions
- In life tables: TLE is lower, HLE is lower, ULE is comparable, so proportion varies across measures (pattern is still there)
- Birth region is a stronger predictor of health than current region, with southern birth being particularly bad
- Even when current region predicts health, its effect disappears when birth region is controlled (in RE models)
- Exception to this pattern is mortality, where current region is stronger than birth region
- In life tables: greater variation from lowest to highest by birth region

Summary, cont'd

- Results are similar when 9 category measure of region is used, but more nuanced (birth in South is bad, but current region is only bad in ESC and WSC—not SA)
- Results hold when SES is controlled
- Results are largely similar when mover/stayer is controlled

Implications and Directions

- How we measure region matters
- Instead of finding that the south isn't so bad, we find it's worse than typically found because of the choice of measure most often used
- Results add to growing body of work showing the importance of early life events and conditions
- Results do not support view that current local conditions (like physician density) matter, but such conditions may matter in early life

Implications and Directions, cont'd

- Next steps:
  - Find early life measures that may explain the effect of birth region
  - Incorporate contextual variables for both early life and current region (the collection of which has been a key part of efforts over the last two years)
  - Integrate additional covariates like SES more satisfactorily: birth region precedes SES, which precedes current region
  - Compare birth cohorts. Geog. mobility has increased, and regional cultures may be blending, weakening early life regional differences
  - Consider movers vs. stayers and particular transitions (like South to Northeast, etc.)