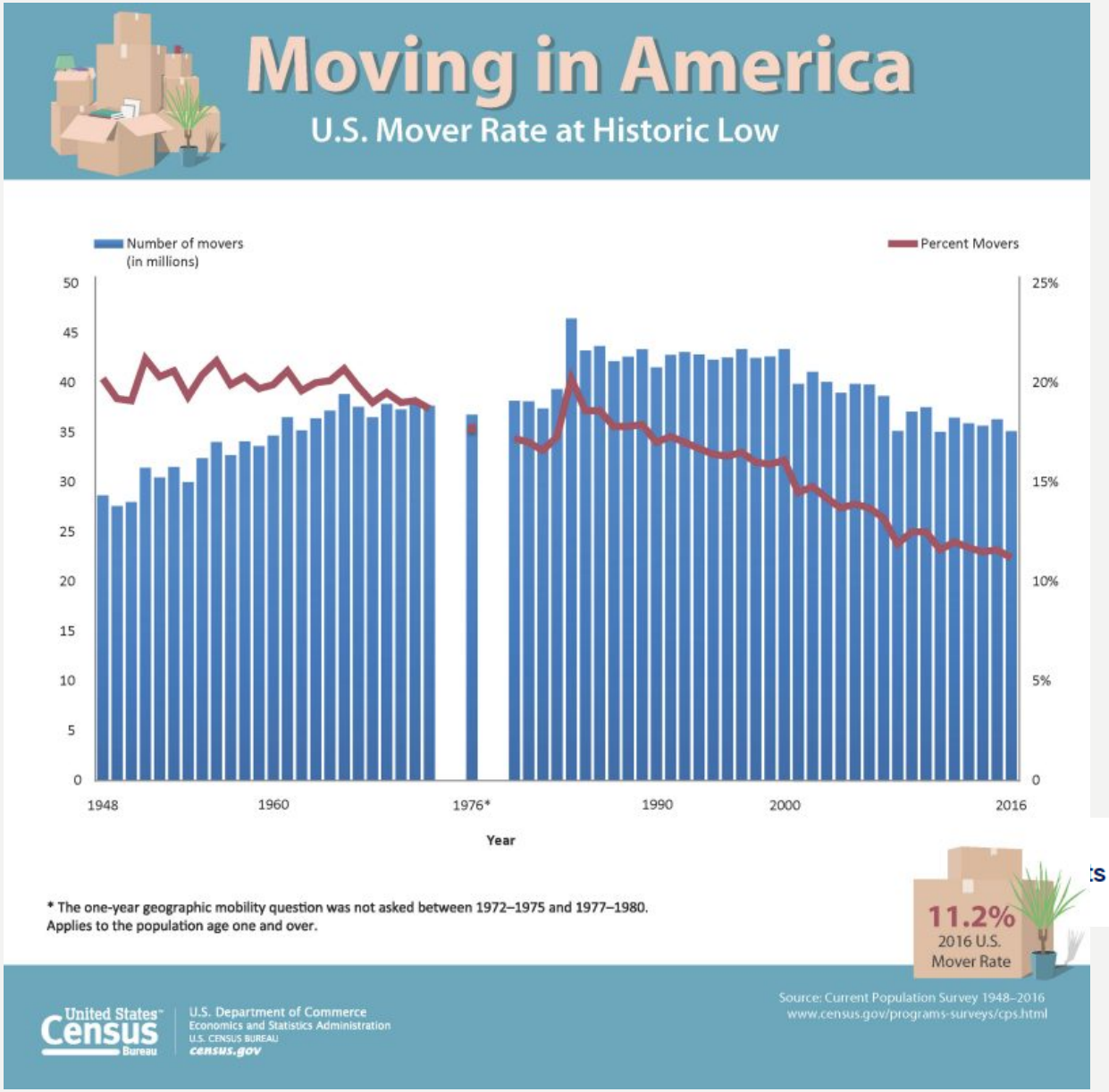
DECOMPOSING LIFETIME MIGRATION EFFECTS ON STATE EDUCATIONAL LEVELS

ALBERT HERMALIN & LISA NEIDERT
UNIVERSITY OF MICHIGAN


Moving in America
U.S. Mover Rate at Historic Low
Number of movers
(in millions)
Percent Movers
50
45
40
35
30
25
20
15
10
5
0
25%
20%
15%
10%
5%
0
1948
1960
1976*
1990
2000
2016
Year
* The one-year geographic mobility question was not asked between 1972–1975 and 1977–1980.
Applies to the population age one and over.
11.2%
2016 U.S.
Mover Rate
United States Census Bureau
U.S. Department of Commerce
Economics and Statistics Administration
U.S. CENSUS BUREAU
census.gov
Source: Current Population Survey 1948–2016
www.census.gov/programs-surveys/cps.html

LIFETIME MIGRATION DATA AGES 25 TO 59: 2008-2012

(IN THOUSANDS)

Measure	< BA	BA+	Total
Current Residents	102,584	44,232	146,816
Native born	82,033	35,899	117,933
Exited state of birth	27,083	17,015	44,098
Remained in state of birth	54,950	18,885	73,835
Migrant	47,634	25,348	72,982
Domestic	27,083	17,015	44,098
Foreign	20,551	8,333	28,884

Decomposition Elements	MD	MI	NV
Percent College Graduates	**38.3**	**27.4**	**21.0**
Size Potential	0.65	1.12	0.22
College Attainment	31.2	29.6	24.5
Retention of College Graduates	47.2	54.1	38.1
In-Migration of College Graduates			
Pool of Native Grads (millions)	16,711	16,308	16,971
Probability of attracting	.0342	.0179	.0111
Pool of Immigrant Grads (millions)	8,333	8,333	8,333
Probability of attracting	.0292	.0199	.0086
% Points of College Graduates from			
Production and Retention	0.096	0.180	0.021
In-migration of Native Graduates	0.201	0.059	0.145
In-migration of Foreign Graduates	0.086	0.035	0.053
Relative Distribution of College Graduates			
Production and Retention	25.0	65.6	9.4
In-migration of Native Graduates	52.6	21.7	66.3
In-migration of Foreign Graduates	22.4	12.7	24.2

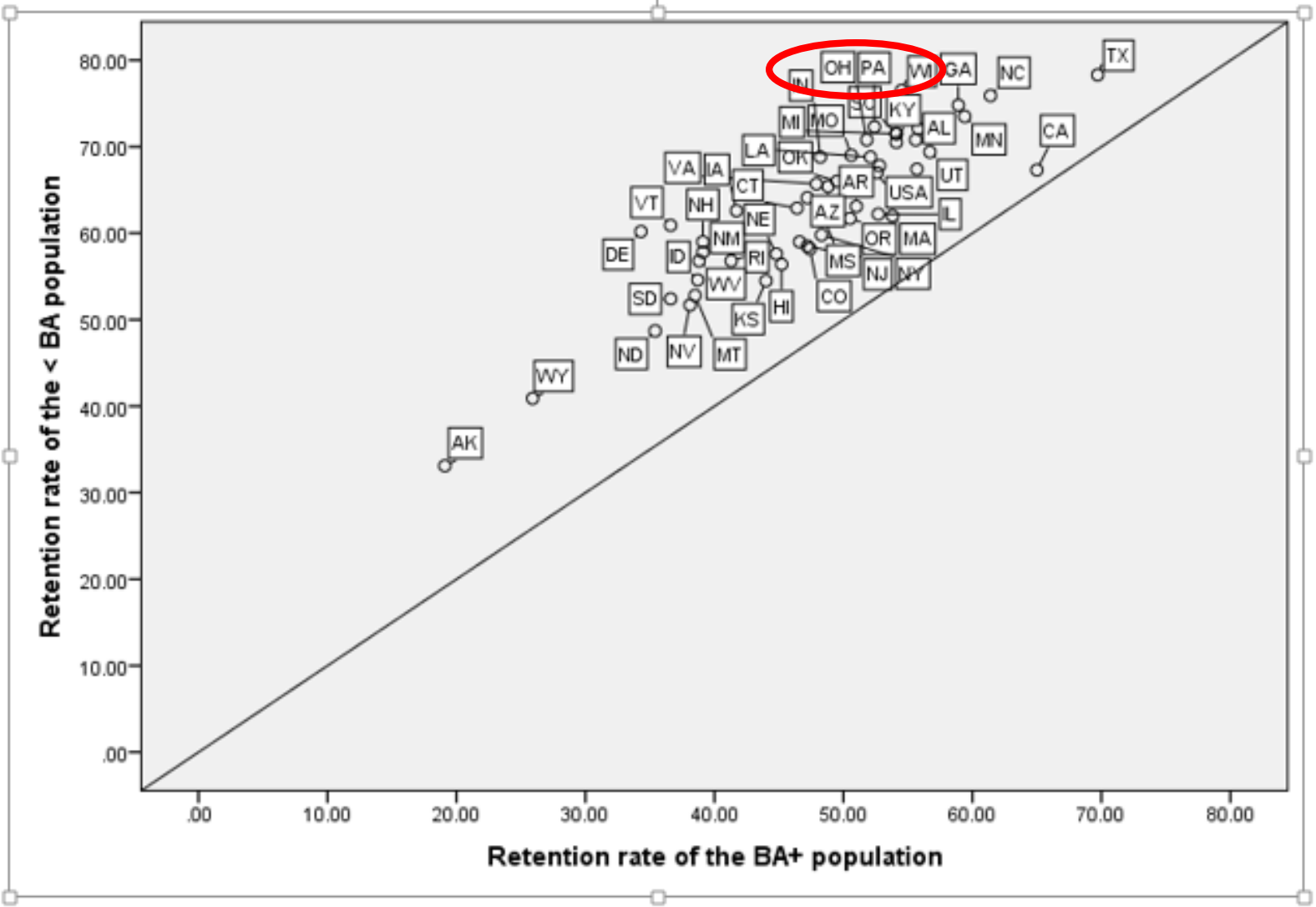
KEY MEASURES

Measure	Definition
B	The total number born in state *i* and still living
E	The number of native born in state *i* who leave, e.g., not living in state of birth
$C = B - E$	The number of current residents of state who were born in the state
D	The number of in-migrants to state *i* – living in state *i* but born elsewhere, including abroad

KEY MEASURES

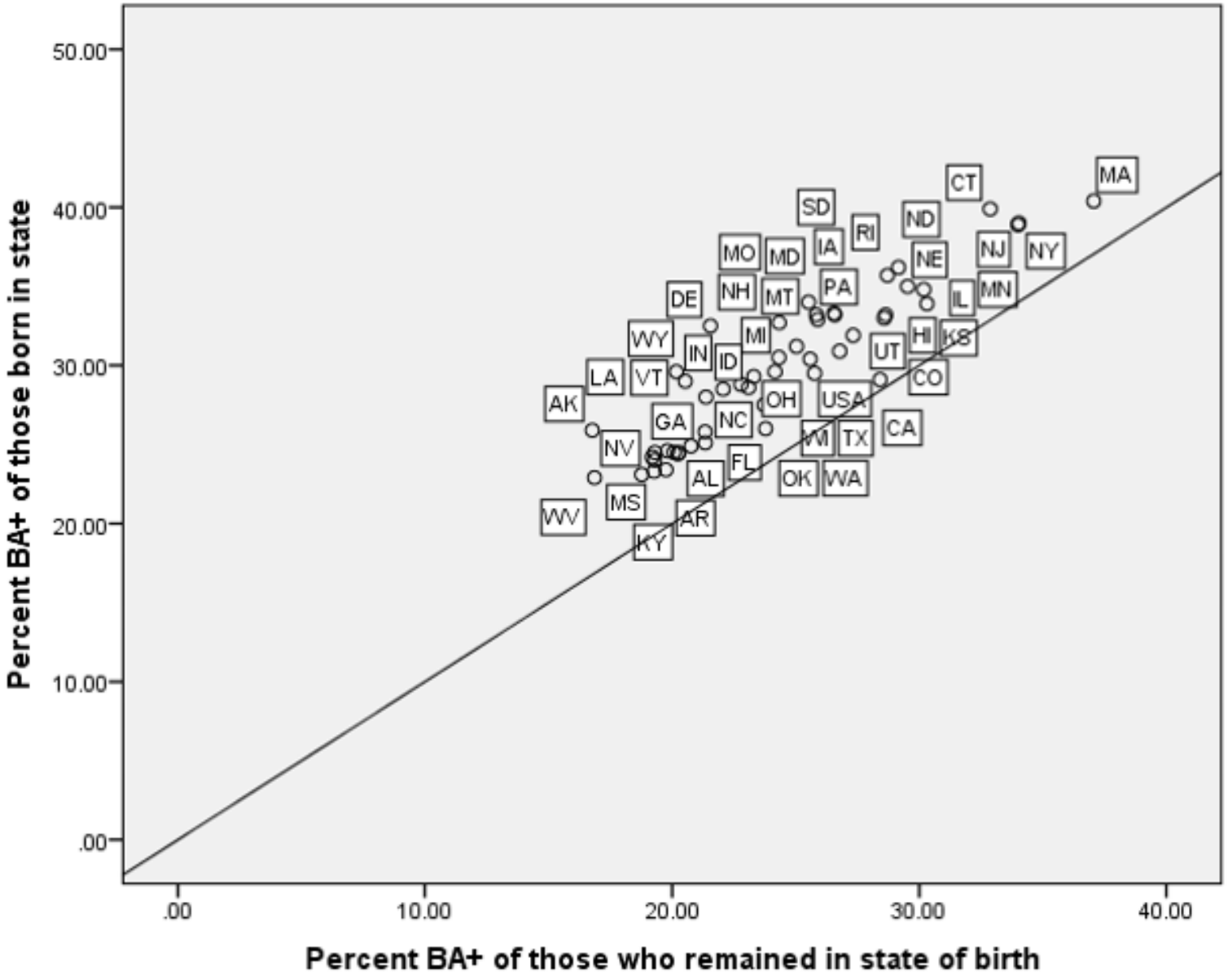
Measure	Definition
$T = (B - E) + D$ *or* $T = C + D$	Total current residents of state *i*
$R = \frac{(B - E)}{B}$	Retention proportion: Current residents who are native born/Total born in state
$A = \frac{D}{T}$	Attraction ratio: In-migrants / Current residents.

Figure 1. Comparison of Retention rates of the BA+ population and the <BA population

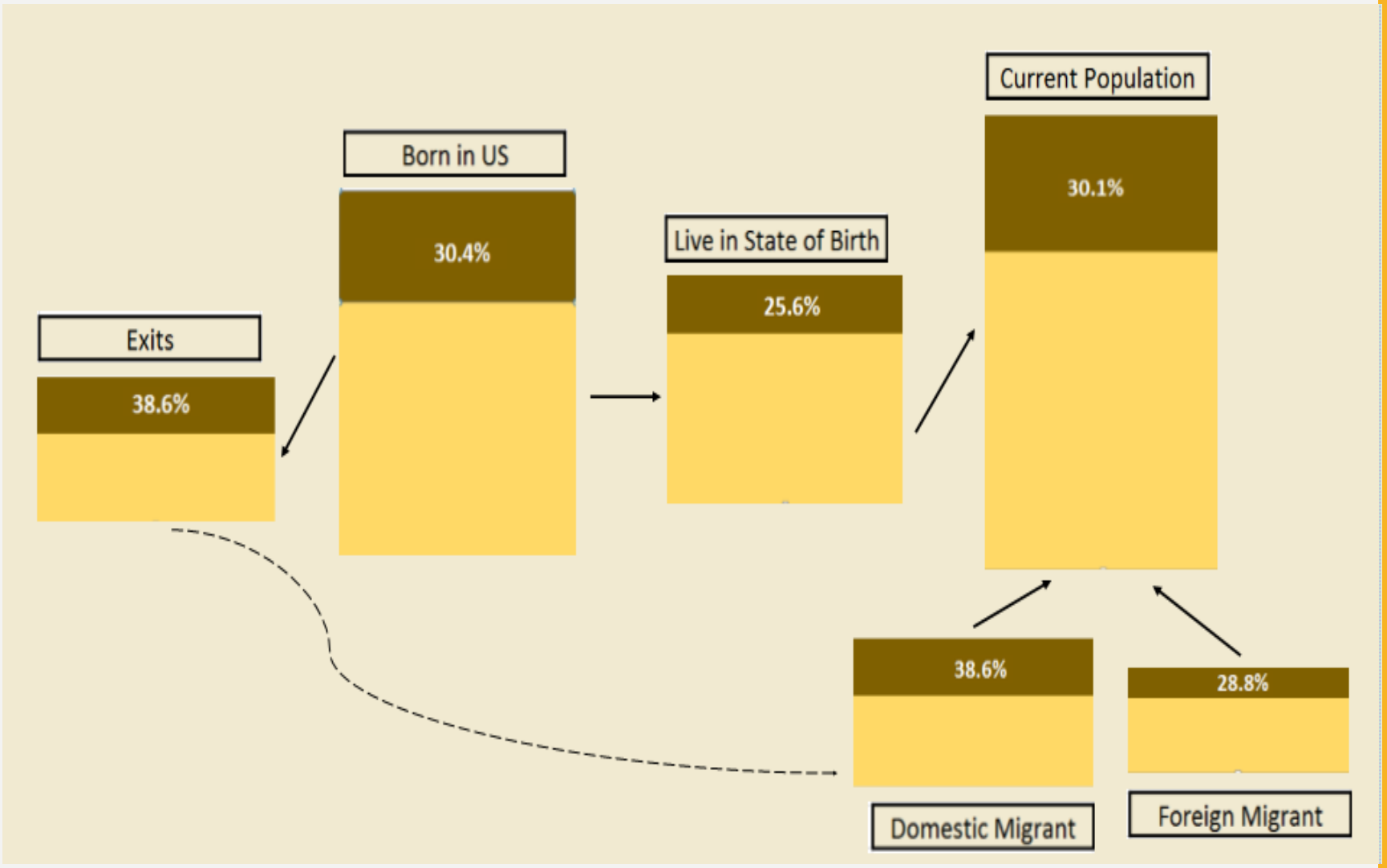


Line is at 45°, e.g. y=x.

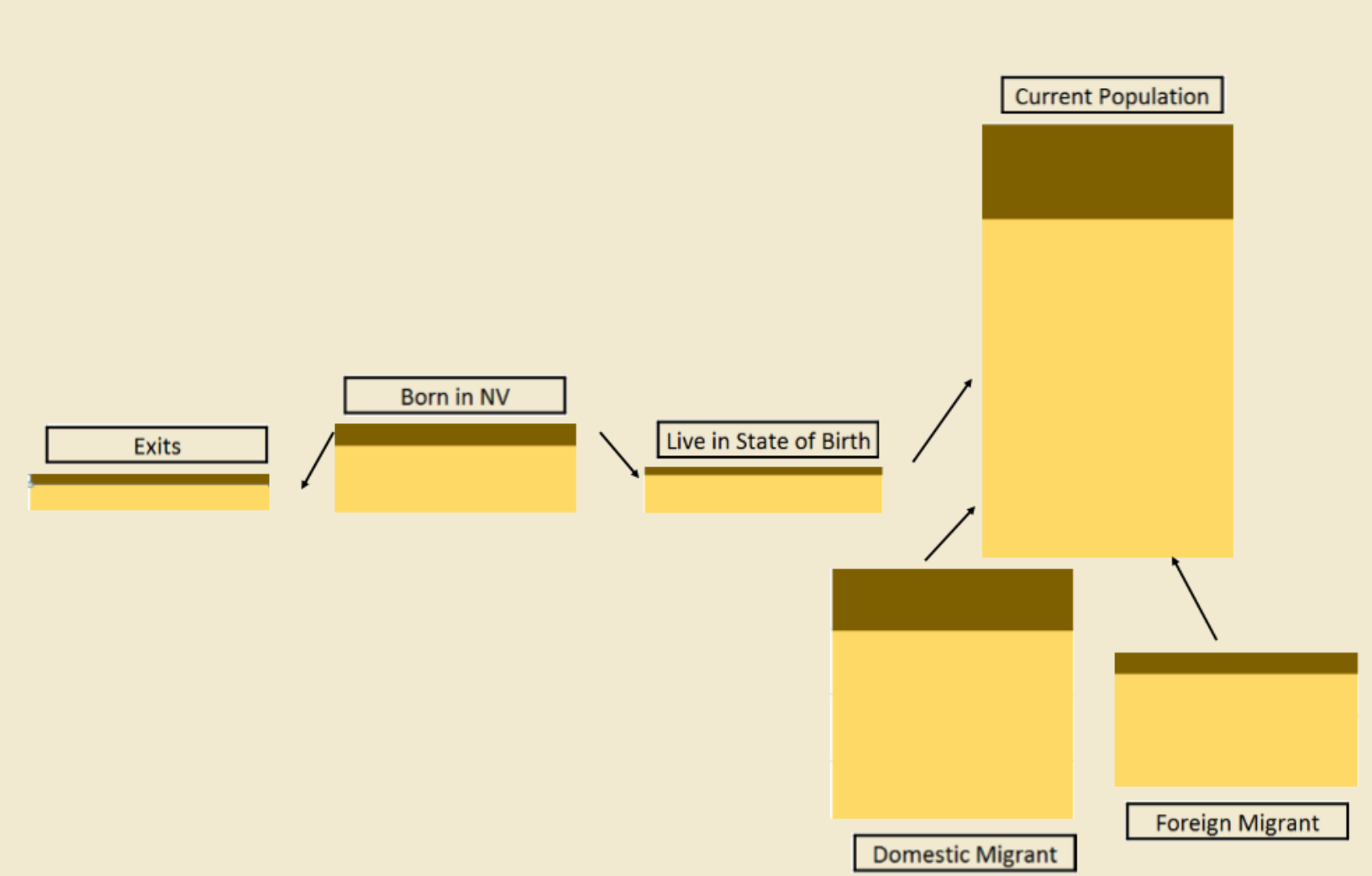
Figure 2. Comparison of BA+ population for those born in state and those who stayed in state of birth



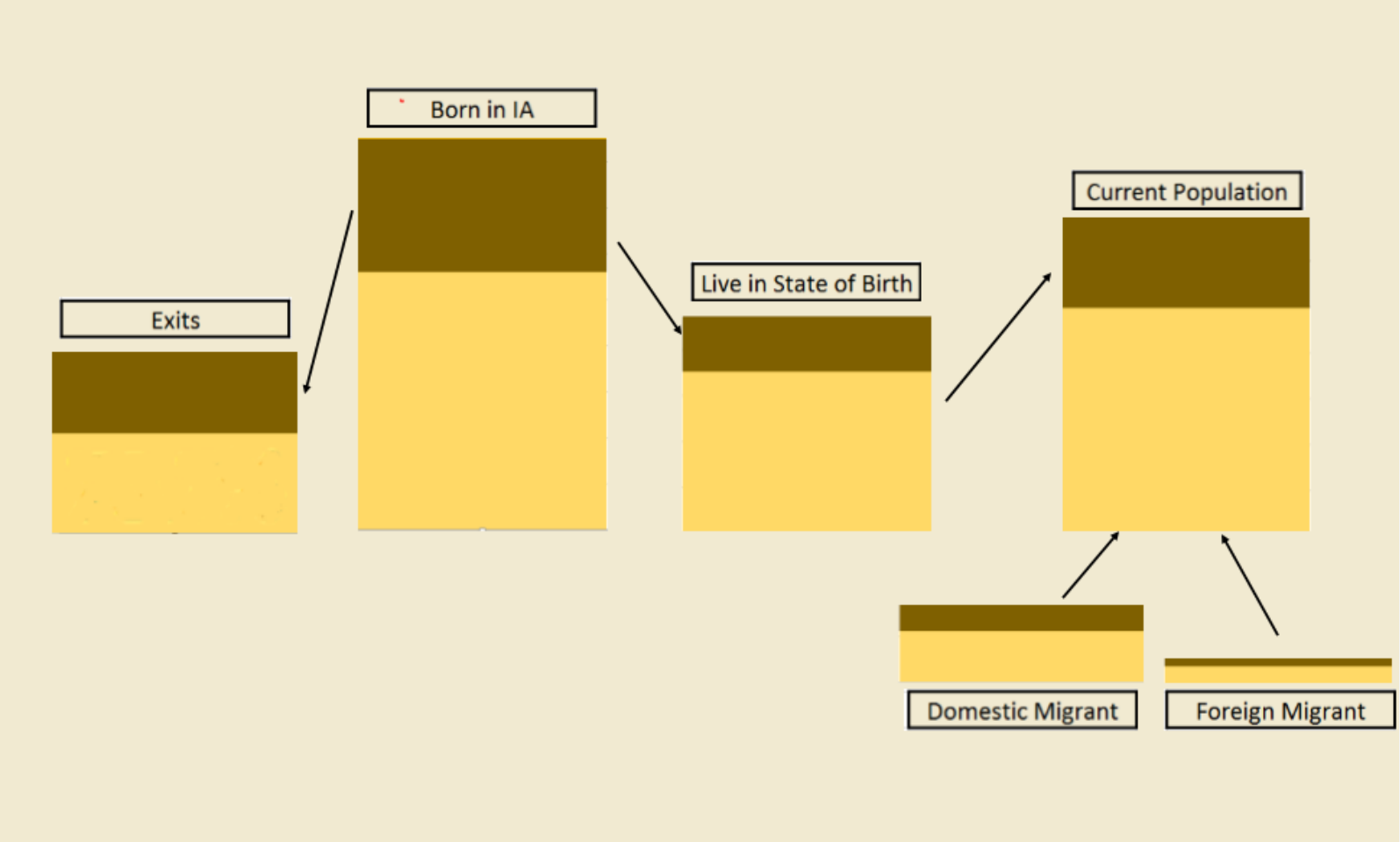
LIFETIME MIGRATION DYNAMICS: UNITED STATES



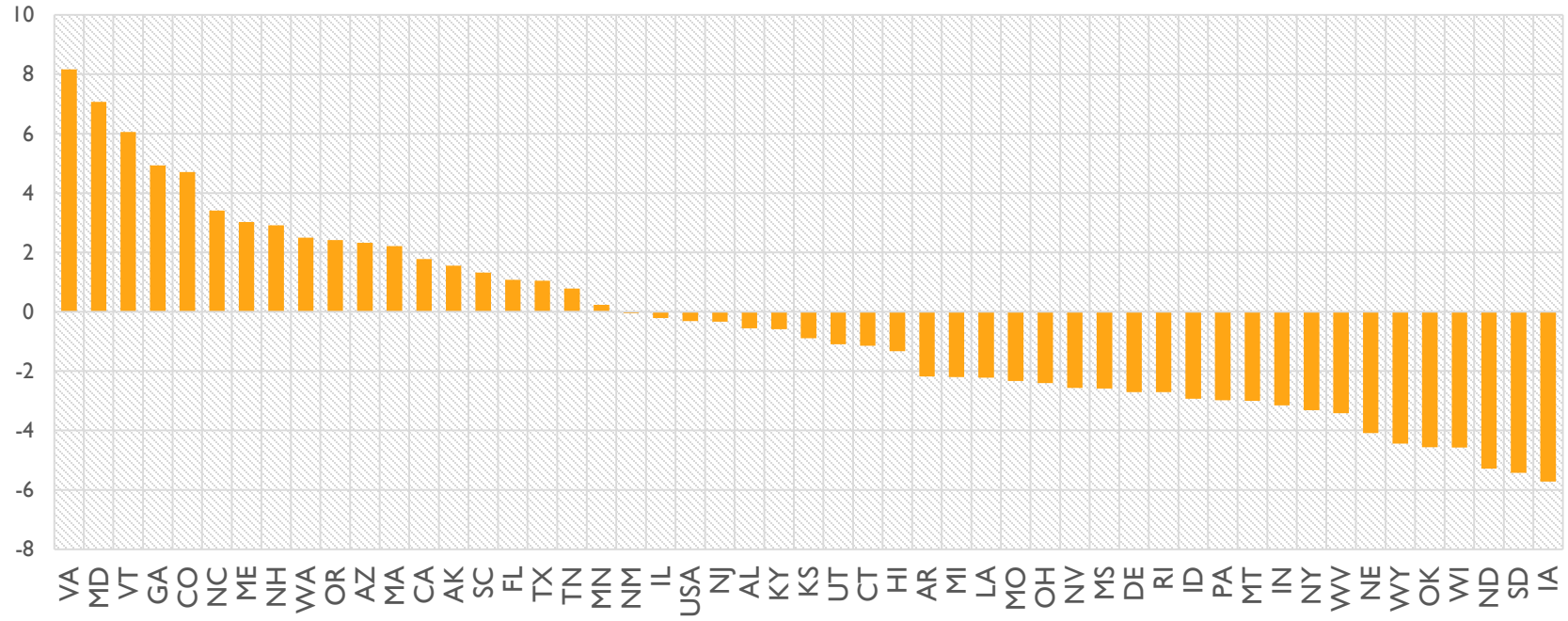
LIFETIME MIGRATION DYNAMICS: NEVADA



LIFETIME MIGRATION DYNAMICS: IOWA



Winners and Losers:
Current % BA+ - BA+ of Those Born in State



HYPOTHETICALS

- How can a state get back to where it started in terms of its college educated population?
  - e.g., $\frac{T(G)}{T} = \frac{B(G)}{B}$

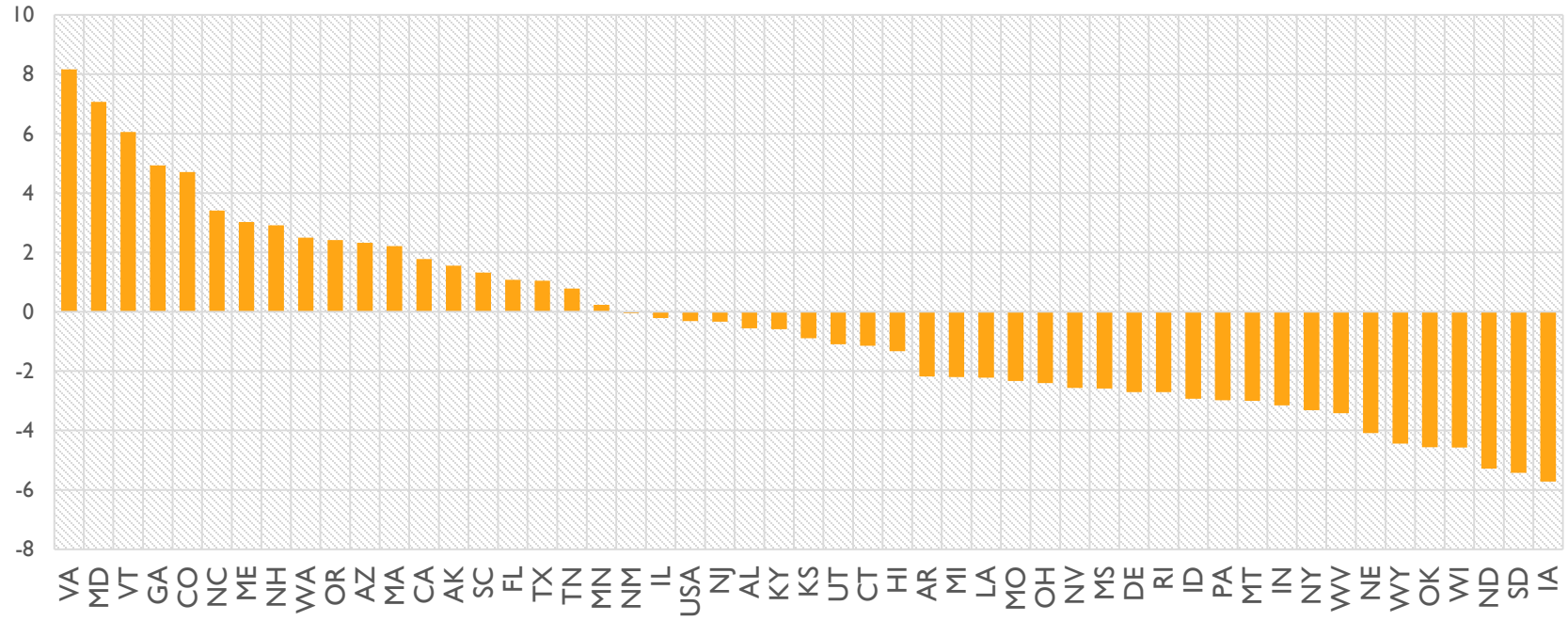
SOME ALGEBRA

Current BA+
$\frac{T(G)}{T} = \frac{B}{T} x \frac{B(G)}{B} x \frac{C(G)}{B(G)} + \frac{D}{T} x \frac{D(G)}{D}$
$\frac{T(G)}{T} = \frac{C(G)}{T} + \frac{D}{T} x \frac{D(G)}{D}$
Multiply and divide first term by C, yields:
$\frac{T(G)}{T} = \frac{C(G)}{C} x \frac{C}{T} + \frac{D}{T} x \frac{D(G)}{D}$

HYPOTHETICALS

- How can a state get back to where it started in terms of its college educated population?
  - e.g., $\frac{T(G)}{T} = \frac{B(G)}{B}$
- Illustrate this with two scenarios
- Scenario I is to manipulate Production/Retention parameters and hold in-migration (D) as a given
- Scenario II is to manipulate Size and Composition of D and hold Production/Retention as a given

Winners and Losers:
Current % BA+ - BA+ of Those Born in State



SCENARIO I: VERSION A
C IS HELD CONSTANT

- College Attainment or Retention needed
  - $x = \frac{T}{B} x \frac{1}{R} - \frac{D(G)}{C(G)}$
  - $x = .891\, x \frac{1}{.541} - .524\ [Michigan]$
  - $x = 1.123$

ST	x	Current BA+	Born in State			
			Attainment of BA+		Retention of BA+	
			Actual	Version-A	Actual	Version-A
MD	0.261	38.1	31.2	8.1	47.2	12.3
NY	1.177	35.6	38.9	45.8	48.3	56.9
RI	1.184	32.9	35.7	42.2	41.3	48.9
CA	0.848	30.9	29.1	24.7	65.0	51.1
GA	0.453	29.3	24.4	11.0	58.9	26.7
KY	1.048	27.6	23.1	24.3	54.1	56.7
MI	1.122	27.4	29.6	33.2	54.1	60.8
IA	1.330	28.3	34.0	45.2	41.7	55.4
TX	0.911	27.0	26.0	23.6	69.7	63.5
WY	1.623	24.6	29.0	47.0	25.9	42.0
NV	**2.241**	**21.9**	**24.5**	**54.8**	**38.1**	**85.4**
WV	1.305	19.5	22.9	29.9	38.8	50.6

SCENARIO 1: VERSION B
C IS NOT HELD CONSTANT

- C can increase in size, e.g., no longer implying a reduction in the size of the not college educated population, when R(G) increases
  - $R"(G) = R(G) + \frac{R\prime(G) - R(G)}{1 - A(G)}$
  - $R"(G) = .541 + \frac{.608 - .541}{1 - .344}$ [Michigan]
  - $R"(G) = .683$ [Michigan]
- More realistic scenario
  - For states where $x > 1.0$, $R" > R'$
  - For states where $x < 1.0$, $R" < R'$

SCENARIO II: VERSION A

- Size and Educational mix of incoming population (D) with size of current population held constant.
  - $Mix = [\frac{B(G)}{B} - \frac{C(G)}{T}] \div \frac{D}{T}$
  - Requires that $\frac{B(G)}{B} > \frac{C(G)}{C}$ & $\frac{D(G)}{D} > \frac{C(G)}{C}$
  - Version A is what happens in expensive housing markets
  - More reasonable version (B) assumes that a larger flow of in-migrants leads to a larger total population

ST	% of Migrants with BA+			% Migrant in Total Pop		
	Actual	Version-A	Version-B	Actual	Version-A	Version-B
NY	37.6	45.0	44.3	44.8	-	47.6
RI	37.4	42.9	42.4	48.8	79.9	50.9
KY	29.6	31.3	31.1	35.0	40.4	35.5
MI	36.9	45.5	43.8	25.6	42.9	27.8
IA	34.1	51.9	48.1	32.0	99.0	37.4
WY	26.7	33.5	33.1	65.3	-	67.3
NV	22.2	25.1	25.1	89.3	-	89.6
WV	24.7	34.9	33.5	33.4	77.1	36.3

APPLICATIONS

- Input for data-driven policies
  - States differ in their college attainment, retention & attraction
  - Solutions/policies should be based on states' migration dynamics & educational landscape
- Strategy
  - Set Goals
    - Examples today were for equivalence
  - Test for Feasibility
  - Flexible
    - Model allows for changing more than one parameter

CONCLUSIONS

- Case Studies
  - Some education/migration strategies are on target
  - And, some are off-target
- Analysis of lifetime migration
  - Useful adjunct to other migration studies
  - No over-interpretation of short-term fluctuations
- Weaknesses
  - Always will be