PSEO Talent Stickiness Framework: Implementation Guide for “Staying in the Sunshine: Developing a Talent Stickiness Index for Arizona's College Graduates”

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Overview

This guide translates the Arizona Talent Stickiness Index (TSI) methodology into a replicable process that PSEO Coalition member states can adapt to track and act on graduate retention trends. The framework uses publicly available U.S. Census Bureau Postsecondary Employment Outcomes (PSEO) data making it available to any state with participating public universities.

Step 1: Access and Prepare the Data

PSEO Data is available through the Census Bureau's LEHD portal (https://lehd.ces.census.gov/data/pseo_experimental.html) Click on your state and download the file for all participating institutions in your state:

- **Employment Flows** — graduate counts by institution, degree field (CIP), degree level, graduation cohort, geography, and industry (NAICS 2-digit) at 1, 5, and 10 years post-graduation
- **Earnings Outcomes** — 25th, 50th, and 75th percentile earnings at 1, 5, and 10 years post-graduation. *The Arizona TSI analysis did not use the earnings outcomes data; however, it is included in the standard PSEO download and is available for states that wish to incorporate an earnings dimension into their implementation.*

Note: Bachelor's cohorts currently span 2001–2019 in three-year increments; master's/doctoral cohorts use five-year increments. PSEO suppresses cells with fewer than 5 graduates so plan for missing values in small programs.

State Employment Projections should be obtained from your state's labor market information (LMI) agency (e.g., Arizona's Office of Economic

Opportunity). Use 10-year projections at the NAICS 2-digit level to identify alignment gaps between graduate retention and workforce demand.

Step 2: Construct the Talent Stickiness Index

The TSI is the ratio of graduates employed in-state to graduates employed anywhere, at a given time horizon post-graduation:

$$\mathrm{TSI}_{i,s,c,t} = \frac{E^{\text{in-state}}_{i,s,c,t}}{E_{i,s,c,t}}$$

Where i = institution, s = industry (2-digit NAICS), c = graduation cohort, and t = time horizon (Y1, Y5, or Y10). TSI ranges from 0 (complete out-migration) to 1 (complete retention). Weight TSI values by cohort size so larger graduating classes carry proportional weight in system-wide averages.

Build the index at **five levels of disaggregation**:

Level	Dimensions	What It Measures
1	All institutions	State system-wide retention
2	Institution	Retention differences across universities
3	Institution × Industry	Which sectors retain graduates by institution
4	Institution × Industry × Cohort	How retention has shifted over time
5	Institution × Industry × Cohort × Region	Where out-migrating graduates are going

Step 3: Analyze Patterns and Identify Priorities

Once the TSI is built, focus analysis on three diagnostic areas:

Longitudinal decline: The Y1–Y5 window shows the steepest retention decline — two to three times steeper than Y5–Y10 across Arizona's institutions. Graduates who remain in-state through year five are substantially more likely to stay long-term, making this the highest-leverage window for intervention.

Industry misalignment: Cross-reference TSI by industry against your state's LMI projections. In Arizona, the stickiest industries (Utilities, Education) have the weakest projected job growth, while the fastest-growing industries (Health Care, Construction) show moderate retention that declines over time — a structural alignment gap.

Enrollment composition: Institutions with high nonresident enrollment might show mechanically lower TSI. States can use IPEDS enrollment data to track the resident/nonresident share by institution and cohort year, then use known in-state vs. out-of-state retention rate differentials to contextualize TSI comparisons across institutions.

For **strategic industries** (high projected demand, documented workforce shortages, or state economic development priority), conduct focused case studies: pull industry-specific TSI at all three time horizons, calculate Y1–Y10 decay, map regional out-migration flows, and develop targeted recommendations.

Step 4: Adapt for Your State

States outside Arizona should make the following substitutions:

- **In-state geography**: Replace Arizona (Mountain Census Division) with your state's Census Division assignment. States spanning multiple divisions should adjust accordingly.

- **Institutional scope**: The Arizona model covers three R1/R2 research universities. States with community colleges, HBCUs, technical or liberal arts colleges in PSEO should build institution-type subgroups alongside institution-level analysis.
- **State priority sectors**: Replace Arizona OEO projections with your state LMI agency's equivalent. NAICS 2-digit codes are nationally standardized, enabling valid cross-state comparisons.

Key Limitations to Communicate

Limitation	Mitigation
Excludes unemployed/out-of-labor-force graduates — TSI reflects employed graduates only	Report alongside BLS unemployment and labor force participation data
2-digit NAICS only — cannot disaggregate within industries	Supplement with state administrative data where available
Y10 data available only for 2004, 2007, and 2010 cohorts	Flag limitation in all Y10 reporting; revisit as new cohorts mature
Cell suppression for programs with fewer than 5 graduates	Aggregate across cohorts or institutions where suppression is extensive