PROGRAM LEADERSHIP CASE STUDY

Workforce Stability Among Post-9/11 Veterans

An integrated evidence program built across federal data sources — ACS PUMS, BLS LAUS, BEA Regional, VA NCVAS — under Six Sigma DMAIC and military After-Action Review discipline.

Patrick Neil Bradley

Founder, Legends' Return Foundation · Program Manager

Charter v1.0 · Kickoff 2026-04-16 · Build v0.16

EXECUTIVE SUMMARY

A founder-operated R&D program, chartered to build defensible evidence on veteran workforce stability.

DATA SOURCES INTEGRATED

4

ACS · BLS · BEA · VA

POST-9/11 COHORT ROWS

184k

2019, 2021, 2022, 2023

BUILD ITERATIONS

v0.1 → v0.16

26 days; build-log discipline

PUBLIC ARTIFACTS

5

Case study · Model card · Explorer · Charter · AAR

Mission delivered.

Four federal data sources integrated into a single state-year analytic panel. Cohort funnel documented row-by-row. An illustrative logit retention model published with a transparent model card disclosing a synthetic-target ceiling. Case study, model card, and interactive explorer live on PatrickNeilBradley.com — all reproducible from a single config and a public build log.

Commander's Intent

THE PROBLEM

Post-9/11 veterans separate into a labor market that inconsistently translates military experience into stable civilian employment.

Federal data exists — ACS PUMS, BLS LAUS, BEA Regional, VA NCVAS — but is rarely integrated into a single analytical view that policymakers, employer coalitions, and veteran-services organizations can act on.

THE MISSION

Produce an integrated, reproducible analytical evidence base describing post-9/11 veteran workforce stability across geography, disability, occupation, and time — and publish it under a methodology any qualified analyst can audit.

End state: a public case study, a reusable pipeline, an illustrative retention model with a transparent model card, and an interactive explorer — delivered to a standard that withstands scrutiny from a federal program office, an employer coalition, or an academic reviewer.

Five objectives, each with an auditable success criterion.

01

Integrate four federal data sources at PUMA/state/sector level

Success: All four sources joined, validated, and version-controlled by v0.10

✓

02

Characterize the post-9/11 cohort on geography, disability, and labor-force outcomes

Success: Reproducible cohort funnel with row-count tolerances at every step

✓

03

Build an illustrative retention model with a transparent ceiling

Success: Model card with AUC, calibration, limitations, and §4a on synthetic-target effects

✓

04

Publish a case study, model card, and interactive explorer

Success: All three artifacts live on PatrickNeilBradley.com with build-log references

✓

05

Maintain build discipline across the program

Success: Build log appended for every ingest, join, and model refit

✓

What this program does — and what it deliberately does not.

IN-SCOPE

- ACS PUMS 2019, 2021, 2022, 2023 (2020 unavailable — COVID)
- BLS LAUS, BEA Regional, VA NCVAS as joinable context
- Post-9/11 cohort: MLPA = 1, ages 22–64, U.S. states + DC
- O*NET Work Context composites (Phase 6 add)
- Illustrative logit retention model with O*NET composites
- Public case study, model card, and interactive explorer

OUT-OF-SCOPE

- ☐ Pre-9/11 era veterans (descriptive only, not modeled)
- ☐ Active-duty service members (filtered via ESR codes)
- ☐ Causal inference on policy interventions
- ☐ Individual-level identification or PII (public microdata only)
- ☐ Predictions about any named employer

Five stakeholders. One governance rhythm.

STAKEHOLDERS

Legends' Return Foundation
Sponsor (founder-operated, DV-owned LLC)

Post-9/11 veterans
End beneficiaries (lived-experience reviewer)

Veteran services orgs
Downstream consumers of findings

Employer coalitions
Hiring and retention insight

Federal data stewards
Source integrity, citation, public-use terms

GOVERNANCE CADENCE

DAILY

Build-log entry for every ingest, join, or refit

WEEKLY

Program Manager review: risks, AUC trajectory, blockers

PHASE GATE

Documented decision log with rationale

CLOSE

Formal After-Action Review

From scaffold to v0.16 in twenty-six days.

Phase 7 is intentionally deferred, not cancelled. The Tier-2 OCCP → 8-digit SOC crosswalk is required for clean composite identification but is blocked outside the program's allowlist. Documented as a known constraint in the model card and the AAR.

Four public sources. One state-year analytic panel.

ACS PUMS

American Community Survey microdata

Veteran cohort, demographics, disability, occupation

BLS LAUS

Local Area Unemployment Statistics

State labor-market context, monthly + annual

BEA Regional

Regional Economic Accounts

State income (SAINC1) and GDP (SAGDP2) context

VA NCVAS

Veterans Analysis & Statistics

Disability ratings, VR&E, vet population by state

STATE × YEAR ANALYTIC PANEL

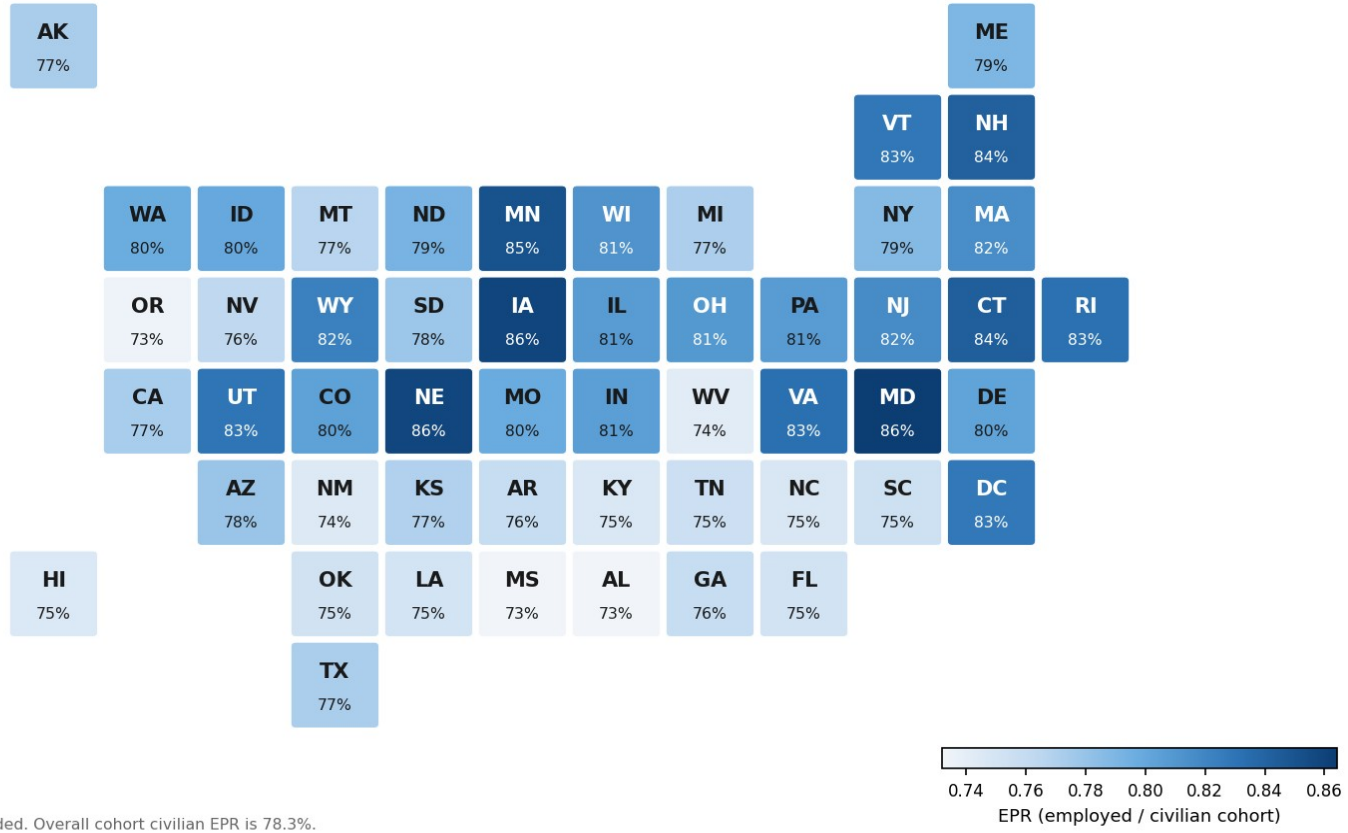
184k post-9/11 veteran rows × 51 states × 4 years

*Cohort-attached features + state-year context + O*NET work-context composites*

Joins, missing-data rules, and synthetic-outcome construction are versioned in join_layer_spec.md and reproducible from the public build log.

Employment-population ratio varies sharply across states.

Post-9/11 veteran employment-to-population ratio
Civilian cohort · ACS PUMS 2019·2021·2022·2023 · PWGTP-weighted



Active-duty rows (ESR 4/5) excluded. Overall cohort civilian EPR is 78.3%.

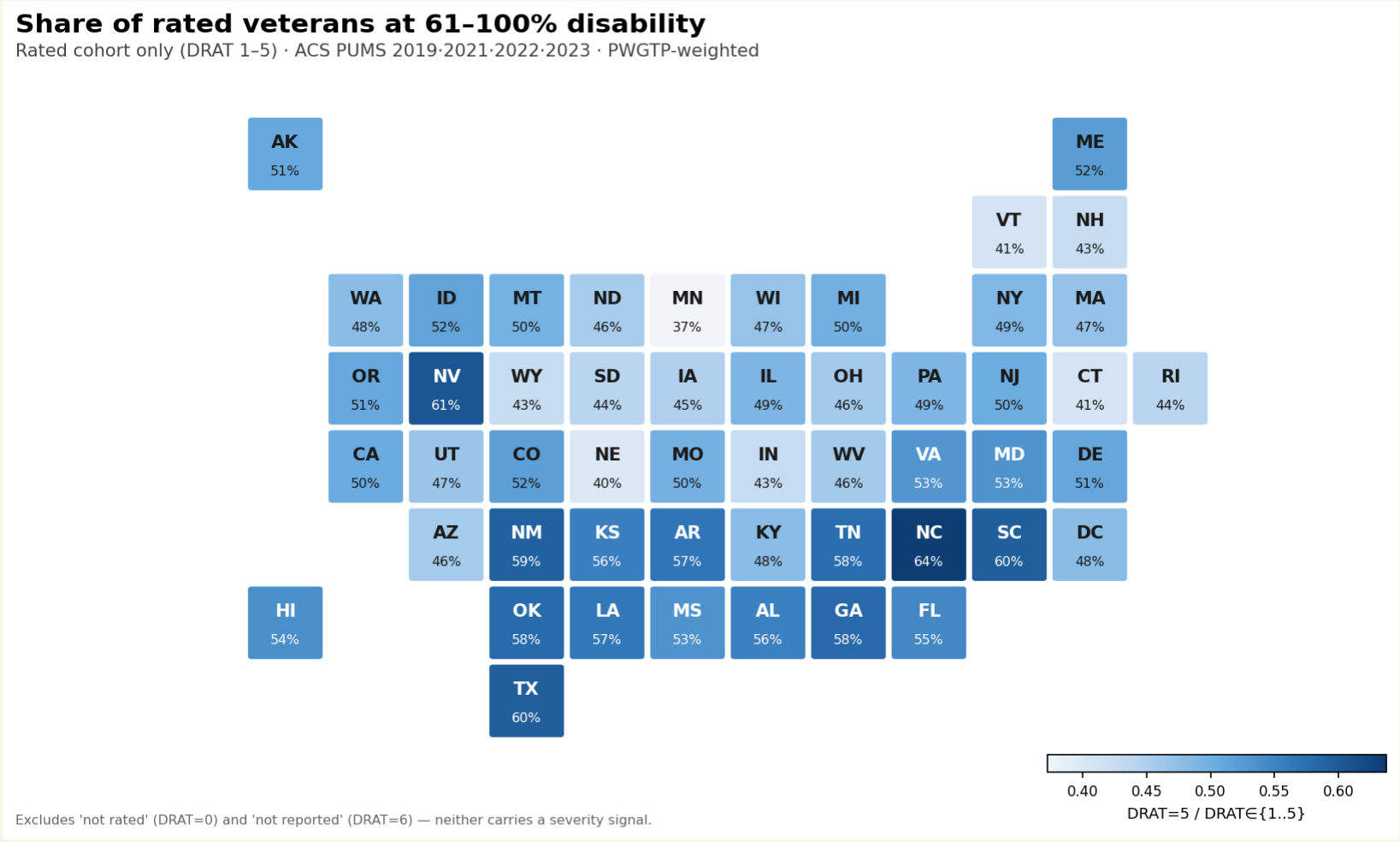
READ-OUT

Post-9/11 veterans show meaningful state-to-state variation in employment-population ratio — a stability signal the model uses as an anchor variable.

WHY IT MATTERS

Geographic dispersion is one of the few signals that survives the synthetic-target ceiling discussed in Chapter 9.

Severe disability rating concentration is geographically uneven.



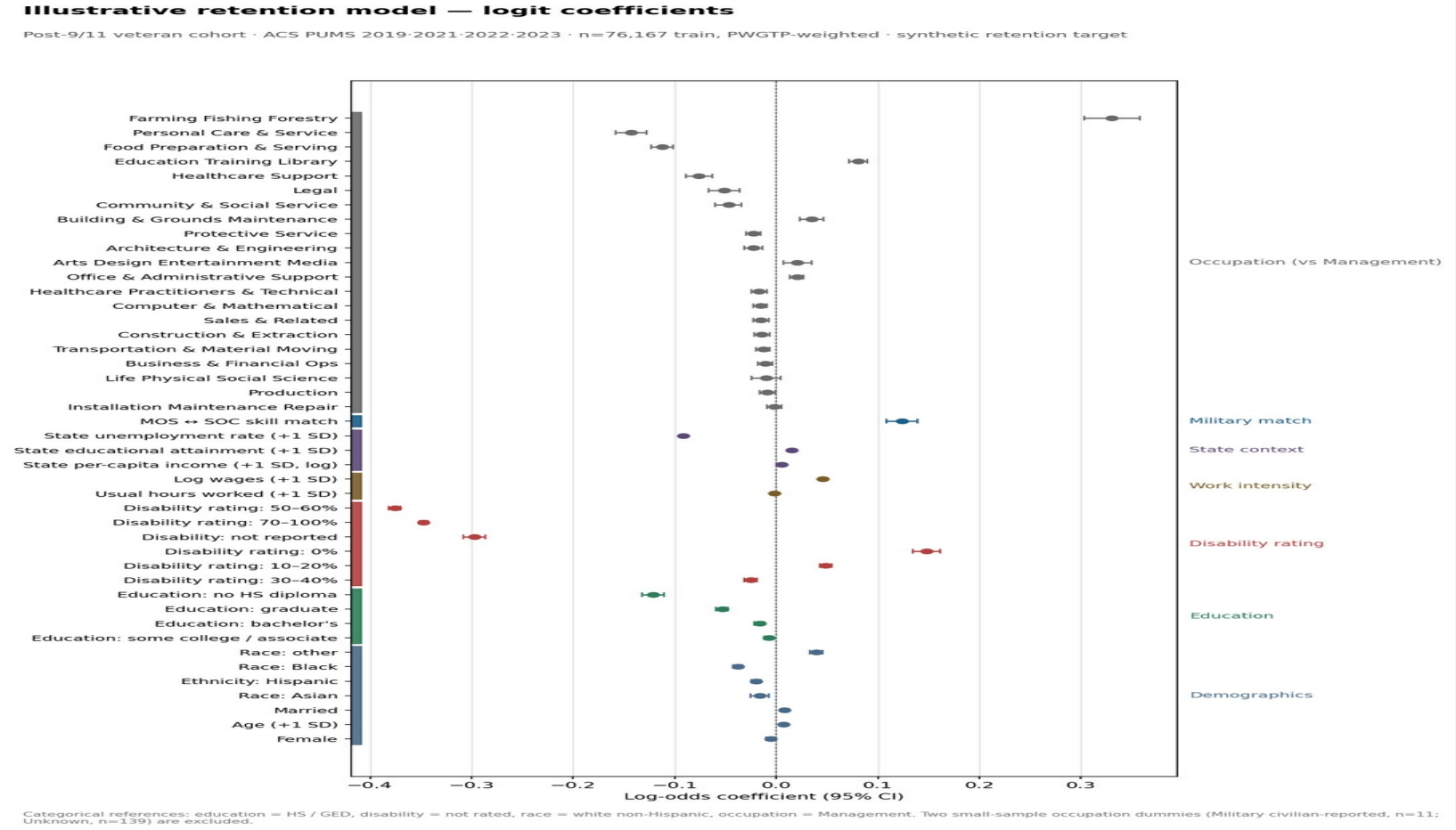
READ-OUT

Severe service-connected disability share (DRAT) clusters in certain states — a function of base presence, post-service migration, and VA enrollment intensity.

POLICY USE

Employer coalitions in concentration states can target workplace accommodations and VR&E partnerships with the highest expected return.

Feature importance, with a transparent ceiling.



AUC HONESTY

Test AUC: 0.566
Validation AUC: 0.561

Flat by design.

The retention outcome is synthetic — built from cross-sectional ACS panels rather than observed longitudinal transitions. The model card §4a discloses this ceiling openly. Feature importances remain interpretable; predicted probabilities are illustrative only.

Five risks. Each mitigated explicitly.

ID	RISK	LIKELIHOOD	IMPACT	MITIGATION
R 1	**Synthetic retention outcome read as a real prediction**	Med	High	*Model card §4a; case-study language emphasizes "illustrative" throughout*
R 2	**Tier-2 OCCP crosswalk unavailable; composites collinear with SOC dummies**	High	Med	*Document collinearity; Phase 7 deferred, not cancelled*
R 3	**Sandbox API restrictions block reproducibility for outside reviewers**	Med	Med	*Pipeline runs cleanly on local Python; .env template documented*
R 4	**Brand inconsistency across case study, model card, and explorer**	Med	Low	*Single design spec; consolidation pass scheduled*
R 5	**Reviewer questions lived-experience legitimacy of cohort framing**	Low	Med	*Lived-experience reviewer: Army 11C, post-9/11 — is the PM*

What I'd do differently — preview of the formal AAR.

SUSTAINS

- Daily build-log discipline — every ingest, join, and refit auditable
- Synthetic-target honesty disclosed at charter, not after results
- Founder-operator framing — disclosed openly, not obscured
- Versioned phase plan: v0.1 → v0.16 in 26 days without scope drift
- Lived-experience review embedded in the PM role, not a sign-off

IMPROVES

- ☐ Secure Tier-2 SOC crosswalk before Phase 4 — not after Phase 6
- ☐ Build the AAR PDF in parallel with the model card, not after
- ☐ Standardize brand styling across case study, model card, explorer earlier
- ☐ Time-box exploratory figures — Phase 4a yielded 30; 8 was enough
- ☐ Stage the deck as an artifact from kickoff, not as a retrospective add

PROGRAM LEADERSHIP IN PRACTICE

Mission, command, evidence, after-action.

This program demonstrates the operating discipline I bring to every project I run: a clear commander's intent, a chartered scope, an evidence-based execution loop, transparent risk management, and a formal After-Action Review at close. Methodology base: Six Sigma DMAIC, military AAR, and mission-command leadership translated to civilian execution.

ARTIFACTS

Case study · Model card · Interactive explorer · Project Charter · Risk Register · AAR

CONTACT

patrick@patrickneilbradley.com · PatrickNeilBradley.com