



A Machine Learning Analysis of Continuation Pay Timing in the Army & USMC



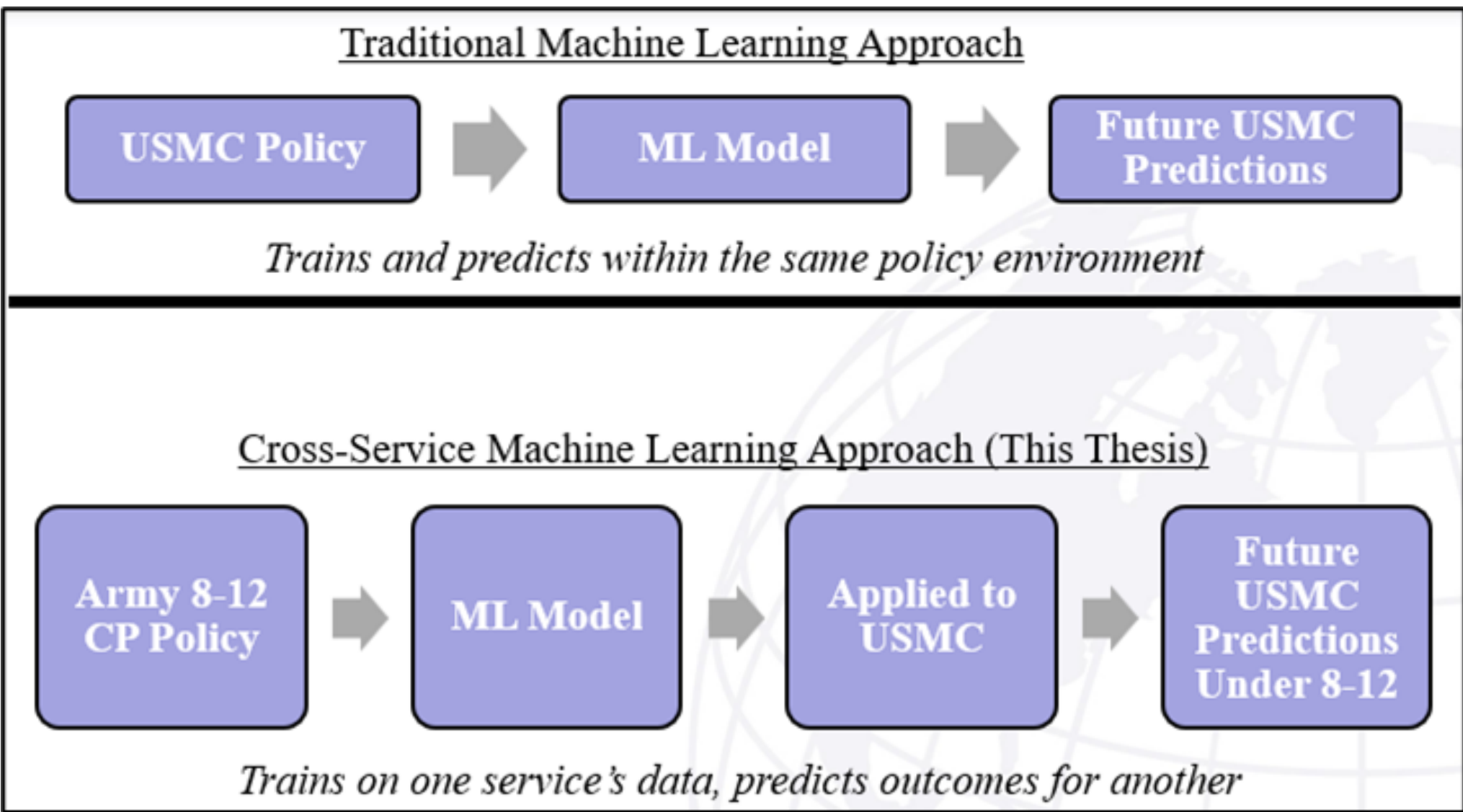
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Abstract

Continuation Pay, introduced under the Blended Retirement System in 2018, is a mid-career retention bonus authorized between 8 and 12 years of service but currently offered by the Marine Corps only at 12 years. This study evaluates whether expanding eligibility to an 8–12 year window would improve retention outcomes.

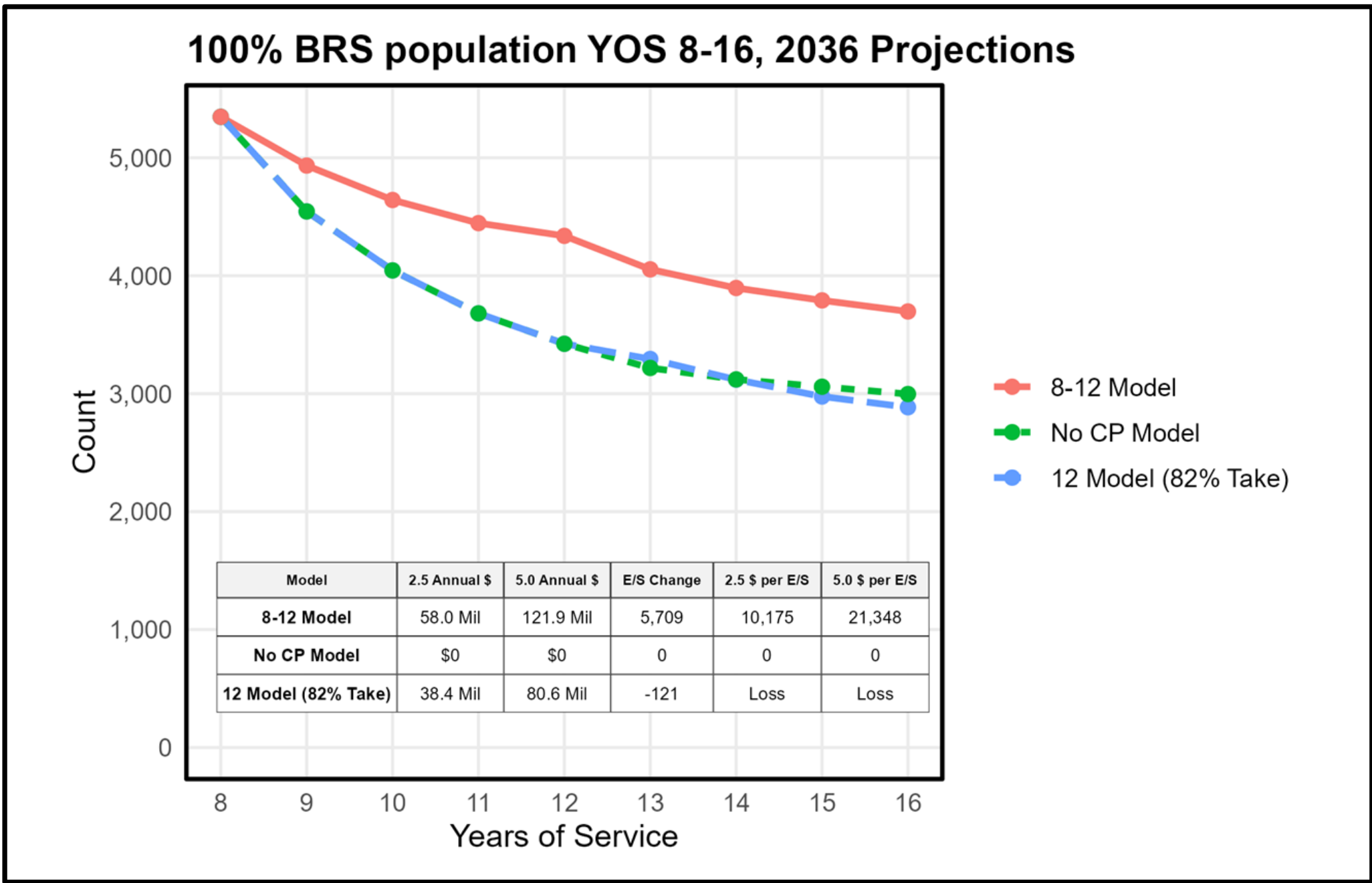
Using historical Army decision data, a machine learning model projects Marine Corps responses under alternative timing policies. Results show that an 8–12 model increases projected mid-career retention by 5,709 Marines, with annual participation of about 4,247 Marines. Estimated annual costs range from \$58 million to \$121.9 million. Retention gains exceed costs, suggesting earlier eligibility may better align incentives with Marine career decision points.

Methods



- Compile Army and Marine Corps personnel data (2018–2025).
- Train a machine learning model on Army Continuation Pay decisions under the 8–12 YOS policy.
- Apply the model to Marine Corps personnel data.
- Project CP take-up, costs, and retention outcomes under an 8–12 policy and compare to the current 12 YOS policy.

Results & Impact



- The 8–12 CP model increases mid-career retention compared to the current 12-year policy.
- Expanding eligibility captures Marines at their critical career decision point.
- CP takers show very high post-obligation retention.
- Adopt a discretionary 8–12 CP policy if retention shortfalls exist in this window.
- Begin with the 2.5 multiplier, increasing only if shortfalls persist.
- Creates a targeted retention tool aligned with Talent Management 2030.

Future Research

Develop optimization models that integrate CP with other retention incentives to jointly optimize timing and multiplier levels.



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