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*Modeling the Departure  
of Military Pilots  
from the Services*

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## Summary

High numbers of voluntary departures from the services by military pilots have periodically caused considerable concern among military administrators and policymakers, both recently and in previous periods of high attrition.<sup>1</sup> In this study, we explore some determinants of the fixed-wing (airplane) pilot attrition problem among male pilots in the Air Force, Navy, and Marine Corps<sup>2</sup> and the responsiveness of attrition to changes in military compensation.

We estimated a pilot attrition model that examines the impact on attrition from factors such as compensation, deployment, voluntary separation programs, and civilian airline hiring. Data sources include military personnel files and information on civilian airline hiring and compensation.

The model is simplified in order to abstract from complex modeling issues, such as the existence of multiple decision points and bonus contracts of differing lengths. We focus on voluntary attrition within a few years of the end of the initial service obligation. Although we were able to verify the insensitivity of our results to a number of specification and sample checks, our results do depend on a number of simplifying assumptions that may not be fully testable. Results from the pilot attrition model should therefore be interpreted in light of these assumptions.

This study produced several noteworthy findings, a summary of which follows:

We find that increases in major airline hiring tend to increase military pilot attrition to a great degree in the Air Force and to a lesser extent in the Navy. A difference of 2,500 total hires by the major civilian airlines (from all sources, military and non-military) represents the difference between a year with moderate hiring, such as 1986 or 1988, and a more extreme year in terms of hiring, such as 1989 (a year with many hires) or 1983 (a year with few hires). In our data, an increase of 2,500 airline hires was associated with a 35 percentage point increase in attrition among Air Force pilots and an 11 percentage point

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<sup>1</sup>The term “attrition” as used in this report refers to a pilot’s voluntary departure from military service.

<sup>2</sup>Note that female, warrant officer, and reserve pilots were not included in the present analysis. Small sample sizes prevented precise estimation of attrition of female pilots.

increase among Navy pilots. This finding is particularly noteworthy given the projected long-term increases in major airline hiring.

Although attrition was found to be quite responsive to bonus pay, the magnitude of the effect of major airline hiring on attrition could make counteracting a significant increase in major airline hiring a costly endeavor, particularly for the Air Force.

The significant influence of civilian major airline hiring on military pilot attrition necessitates the development of a military hiring plan that will enable the armed forces to respond to strong exogenous influences. This situation also underlines the importance of incorporating reliable forecasts of major civilian airline hiring into a military pilot hiring plan.

Both the pay profile and lifestyle offered by the major civilian airlines contrast sharply with those of their military counterparts. Although the present research establishes a strong association between the availability of major civilian airline jobs and military pilot attrition, this research cannot disentangle the contributions of major airline pay and lifestyle to this association. Future research might include survey components that would disentangle these elements of the civilian airline job. Such research might suggest ways in which the military could supplement changes in compensation in order to respond to the challenges presented by the major civilian airlines.