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UNITED STATES GENERAL ACCOUNTING OFFICE
WASHINGTON, D.C. 20548

RESOURCES, COMMUNITY,
AND ECONOMIC DEVELOPMENT
DIVISION

27 MAR 1984

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The Honorable William Lehman
Chairman, Subcommittee on
Transportation
Committee on Appropriations
House of Representatives

Dear Mr. Chairman:

Subject: Review of Studies on Early Retirement
of Flight Service Station Specialists

Conference Report No. 97-960¹ directed the Federal Aviation Administration (FAA) to refer to GAO for its evaluation studies on whether flight service station (FSS) specialists should be afforded early retirement benefits currently available to air traffic controllers. In May 1983 the FAA Administrator forwarded to GAO two studies: (1) a November 1981 report prepared by JWK International Corporation for FAA and (2) an April 1982 critique of the JWK study prepared by Ruttenberg, Friedman, Kilgallon & Associates, Inc. (RFKA), at the request of the National Association of Air Traffic Specialists.

In June 1983 we agreed with your office to review the validity of the methodology and data analysis presented in the two studies. Our work was based solely on information presented in the studies, and we did not attempt to independently validate whether FSS specialists should or should not be afforded early retirement. In September 1983, we discussed the results of our evaluation of the studies with your office. This letter summarizes the information presented at that briefing.

¹Conference Report No. 97-960, Making Appropriations for the Department of Transportation and Related Agencies for the Fiscal Year ending September 30, 1983, and for Other Purposes, December 13, 1982.

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Our review showed that JWK's study results are inconclusive. The results do not support FAA's conclusion that FSS specialists should not be afforded early retirement because:

- The sample size was too small and might not have been representative of all FSS specialists.
- The criteria to assess FSS specialists' performance were not proven to be valid measures.
- Age was not shown to be the cause of noted performance deficiencies.
- Faulty study implementation could have introduced bias and error into the results.

In addition, it appears that JWK was limited by time and resource constraints which may have precluded it from selecting a random and statistically valid sample.

With regard to RFKA's critique of the study, we generally agree with RFKA that the study results are inconclusive. However, we do not agree with RFKA's assertion that the only statistically acceptable finding is that FSS specialists' performance deteriorates with age.

BACKGROUND

FAA initiated a study of flight service station personnel in April 1981 in response to the House Appropriations Committee's request that an independent review be conducted of those factors which may bear on the issue of providing early retirement benefits to FSS specialists. FAA contracted with JWK International Corporation to conduct this study at a cost of about \$75,000. During a 2-week period in August 1981, JWK visited 15 FSSs throughout the United States and collected data on age, length of service, and job performance of FSS specialists. Job performance was measured by supervisory ratings and specialists' performance in completing three skills tests.² JWK also compared the FSS specialists' experience relative to medical disqualifications, waivers, and disability retirements with the experience of air traffic controllers. In addition, JWK estimated the cost to FAA for

²These were tests on (1) preflight services/pilot briefings, (2) inflight services, and (3) emergency services. The tests were developed by FAA for use in training FSS specialists at the FAA Academy in Oklahoma City.

extending early retirement benefits to FSS specialists. The JWK study found that age exerts only a minor influence on job performance. Based on the findings and conclusions of the JWK study, FAA contends that FSS specialists should not be afforded early retirement.

To determine if the study was proper and adequate and if the conclusions fairly stated the findings, the National Association of Air Traffic Specialists contracted with RFKA to thoroughly analyze the methodology and testing methods used by JWK. In summary, the April 1982 RFKA critique challenged the JWK study on the basis of faulty implementation and design problems. RFKA concluded that the JWK study was not adequate to make an informed decision on the extension of early retirement benefits to FSS specialists. RFKA also stated that the only statistically acceptable finding which could be drawn from the study is that specialists' performance deteriorates with age.

OBSERVATIONS

We have the following observations on the JWK research design and study implementation and RFKA's critique of that study.

1. The sample size was too small and might not have been representative of all FSS specialists.

JWK sampled only 15 of over 300 stations in the United States and obtained information from 162 of over 4,500 total FSS specialists. The sample was not random and might not have been representative of the population. It was also too small to assure reasonable statistical certainty. Furthermore, the judgment sample used was not representative of such important conditions as geographic locations, FSS levels of activity, and experience of FSS specialists. A sample size of about 500 specialists selected at random from the 4,500 specialists, or nearly all of the FSS specialists in 50 sites selected at random from the more than 300 stations, would provide a more statistically sound base. The FAA Project Technical Officer stated that the sites selected provided a cross-section of all FSSs.

2. The criteria to assess FSS specialists' performance were not proven to be valid measures.

The two performance measures--supervisory ratings and skills tests to measure knowledge of inflight, preflight, and emergency services--may not be adequate predictors of performance. The results of the ratings did not correlate well with the results of the skills tests with respect to performance, indicating that

either they did not account for a common cause of performance deficiencies, or that one of the measures was irrelevant. Also, both measures may be biased for a variety of reasons, such as the skills tests favoring well-educated respondents, or supervisory ratings reflecting age discrimination.

JWK's proposed study design recognized that potential biases could exist in supervisory ratings and skills tests and advocated the use of skilled performance evaluators to assess actual operational performance. FAA disapproved this proposal on the basis that JWK's study plan did not identify the methodology to be used in selecting expert evaluators and because of logistical problems and travel costs in administering the tests. Rather, JWK used FAA's recommended approach of using supervisory ratings as a measure of specialists' performance.

3. Age was not shown to be the cause of noted performance deficiencies.

The JWK study tested for an association between age and performance but, with the exception of experience, it did not account for, or rule out, other factors which could also affect performance. For example, education and lack of developmental opportunities could also affect performance, but these were not considered.

4. Faulty study implementation could have introduced bias and error into the results.

The study itself did not include adequate pretesting (e.g., trial runs to test the appropriateness of the procedures and measures used). JWK used the first day of data collection at the first site as the pretesting period. Meanwhile, other data collection staffs were already en route to their assignments before the pretest operation was completed. One type of problem that pretesting resolves is the allowance of sufficient time to complete data collection. We noted that data collection staffs did not and probably could not complete their assignments in the allotted time and obtained complete information on less than one-half of the FSS specialists contacted. JWK obtained performance assessment supervisory ratings on 58 percent of the respondents and obtained complete data, including results of the three skills tests, on 43 percent of the respondents. Moreover, the data were not always collected under controlled conditions. There were instances where subject responses were made during a busy work period. FAA said that response data were not complete because the FSS specialists' participation was voluntary and that

some specialists were apprehensive about participating in the survey.

5. The JWK study does not, as RFKA contends, statistically support a finding that performance deteriorates with age.

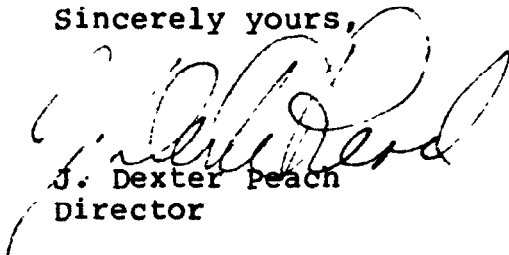
We generally agree with RFKA's determination that the findings of the JWK study are inconclusive. However, we do not agree with the position taken by RFKA that discredits the JWK methodology but at the same time indicates that the study supports a finding that performance deteriorates with age. In this regard, the JWK study takes the position that the effect of age on performance is trivial, typically accounting for about 5 percent of noted performance deficiencies.

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On December 19, 1983, we briefed the Acting Director of FAA's Office of Personnel and Training on the results of our review. Except as noted under item 4, he offered no comments on our findings. However, he did tell us that FAA stands firmly behind the JWK study and continues to believe that the study results are valid.

We are sending copies of this letter to the Secretary of Transportation, the Acting Administrator of FAA, the research firms of JWK and RFKA, and the National Association of Air Traffic Specialists. Copies will be made available to others upon request.

Sincerely yours,



J. Dexter Peach
Director