

12

FIFTH QUADRENNIAL REVIEW OF MILITARY COMPENSATION

AD-A142 910



VOLUME IC SUPPORTING APPENDIXES TO UNIFORMED SERVICES RETIREMENT SYSTEM

(P - Q)

JANUARY 1984

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16. SUPPLEMENTARY NOTATION A Quadrennial Review of Military Compensation is required by Title 37, U.S.C. 1008b. The Fifth QRMC was directed by President Reagan in his August 17, 1982 letter to Secretary Weinberger. This volume is part of a multivolume report that includes an Executive Summary, Volume I, IA, IB, IC, II and III.			
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19. ABSTRACT (Continue on reverse if necessary and identify by block number) Volume IC of the multivolume report of the Fifth Quadrennial Review of Military Compensation (Fifth QRMC) provides supplemental and supporting data to the analyses presented in Volume I, Uniformed Services Retirement System, of this Presentially convened, legislatively mandated assessment of the Military Estate Program and active duty Special and Incentive pays, conducted in 1983 and early 1984. Specifically, it contains Appendixes P and Q. Appendix P describes the layouts and coding of "The Post-Service Earnings History File;" the sample-screening, stratification and selection procedures used; and the general skill categories which comprise the occupation groups of interest. An understanding of these elements is essential to both the technical readers of the Fifth QRMC report and to future users of this unique data base. This file, which resides on magnetic tape at the Defense Manpower Data Center (DMDC), was created from data in the files of the Social Security Administration, the			
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Internal Revenue Service and DMDC in order to form the basis for an assessment of the post-service earnings of former members of the Uniformed Services. This is the first time that such effort has been undertaken.

Appendix Q consists entirely of the Coopers & Lybrand report, "Military Retirees' and Separates' Post-Service Earnings." It analyzes the post-service wages and salaries of military personnel relative to comparably aged and educated veterans identified in the 1980 census. It contains a description of the data sources and approach, study methodology and findings, occupation-specific results and age/earnings profiles. It further presents a longitudinal analysis and conclusions.

VOLUME IC

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The Post-Service Earnings History File was created from data in the files of the Social Security Administration, the Internal Revenue Service and the Defense Manpower Data Center in order to form the basis for an assessment of the post-service earnings of former members of the Uniformed Services. Appendix P describes the file layouts and coding; the sample screening, stratification and selection procedure employed; and the general skill categories of which the occupation groups of interest consist.

APPENDIX Q. Military Retirees' and Separatees' Post-Service Earnings

This appendix consists entirely of the Coopers & Lybrand report of the same title. It analyzes the post-service wages and salaries of military personnel relative to comparably aged and educated Census veterans. It contains a description of the data sources and approach, study methodology and findings, occupation-specific results and age-earnings profiles. It further presents a longitudinal analysis and conclusions.

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Other Volumes Associated
with the
Uniformed Services Retirement Program Study

**VOLUME IA SUPPORTING APPENDIXES TO UNIFORMED SERVICES RETIREMENT
SYSTEM (A - G)**

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**VOLUME IC SUPPORTING APPENDIXES TO UNIFORMED SERVICES RETIREMENT
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- P. The Post-Service Earnings History File
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VOLUME IE ADDITIONAL DATA/BACKGROUND MATERIAL/COMPUTER TAPE FORMATS

APPENDIX P
THE POST-SERVICE EARNINGS HISTORY FILE



SURVEY AND MARKET ANALYSIS DIVISION
DEFENSE MANPOWER DATA CENTER
KYLE JOHNSON

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I. Introduction

The 5th Quadrennial Review of Military Compensation (QRMC) was established to evaluate in relation to national security objectives, the adequacy of the military retirement system and certain special and incentive pays received by military personnel. The Post-Service Earnings History File was created from data in the files of the Social Security Administration (SSA), the Internal Revenue Service (IRS), and the Defense Manpower Data Center (DMDC) in order to form the basis for an assessment of the post-service earnings of military personnel. Because the file contains earnings data over a number of years for a large sample of individuals, its usefulness will extend far beyond the purposes of the QRMC; in cooperation with the IRS, DMDC will continue to supplement and maintain this file. Initially, the file consists of two files, with data from SSA and IRS records respectively. These files will be merged, and information on additional years' earnings of the sample members will be added as it becomes available from IRS. Occupational data may also be available in the future.

Further, the file will be supplemented with samples drawn from DMDC's annual separation files in later years.

II. File Contents

The file contains three types of data, taken from three sources of administrative records. For each individual we first have a group of variables which simultaneously describe the individual and define the cell structure of the file. These variables, derived from the DMDC Separatee File ("Loss File"), include: Branch of Service, Years of Service, Education, Grade Level, Year of Separation from the Service (1972-1980), and Military Occupation Category. Each of the variables is categorical; jointly, their values can be combined in 82,944 ways. Each of these possible combinations (e.g. Army veterans of five years service, less than a high school education, pay grade E6 or below, separated in 1974, with an occupation in the combat arms) defines a cell. For reasons of confidentiality and cost, all individuals on the file are members of cells with a population of at least three. For cells with a population greater than 25, a random sample of 25 members was drawn for the file. (See Appendix 1, "Sample Screening, Stratification, and Selection," for details of the sampling procedure.)

Files containing these variables, together with Social Security Numbers, were sent to SSA and IRS to obtain the second group of variables, the annual reported income for each individual. Those agencies matched the income data to the file using the Social Security Number, which was then removed before the merged data were returned to DMDC.

Data from the Social Security Administration included reported W-2 earnings up to the Social Security reporting ceiling for years 1973 to 1981. Also, only earnings from Social Security covered employment were reported. From IRS, W-2 earnings were reported up to a confidentiality ceiling of \$150,000, but only for years 1979-1981. In both cases, earnings were only reported for an individual beginning with the year following his or her separation from the Service.

Finally, each record carries a group of cell-specific aggregate variables. Like the first group, the cell-structure variables, these are common to all observations in a cell. Unlike that group, however, these variables describe the cell rather than the individual and represent "measurement with error" when applied at the individual level of observation. These variables include the percent distributions of the cell by AFQT category and paygrade, mean AFQT score, mean age and education, the longest, shortest, and median time in grade, and the sampling rate for the cell. Where sampling was done (cells of size 25 or greater) these aggregate variables refer to the sample and not to the cell population from which it was drawn.

The next section presents copies of the file record layouts followed by a variable-by-variable description of the coding. Note that presently there are four distinct subfiles, each with its own layout: IRS officer, IRS enlisted, SSA officer, and SSA enlisted.

File Format and Variable Description

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OFFICER SAMPLE POPULATION WITH IRS DATA

GROUP BEG POS.	GROUP END POS.	ADDRESS	FIELD DESCRIPTION GROUP/ELEMENT
1	7	CELL IDENTIFICATION NUMBER	
		1	SERVICE CATEGORY
		2	RACE/SEX CATEGORY
		3 - 4	YEAR OF SERVICE CATEGORY
		5	EDUCATION/GRADE LEVEL CATEGORY
		6	YEAR OF SEPARATION CATEGORY
		7	MILITARY OCCUPATION CATEGORY
8	78	EARNINGS FROM IRS DATA	
		8 - 24	FILLER
		25 - 30	1973 WAGE EARNINGS
		31 - 36	1974 WAGE EARNINGS
		37 - 42	1975 WAGE EARNINGS
		43 - 48	1976 WAGE EARNINGS
		49 - 54	1977 WAGE EARNINGS
		55 - 60	1978 WAGE EARNINGS
		61 - 66	1979 WAGE EARNINGS
		67 - 72	1980 WAGE EARNINGS
		73 - 78	1981 WAGE EARNINGS
79	162	GI-BILL DATA FIELDS	
		79 - 84	1972 AVERAGE ALLOTMENT
		85 - 87	1972 PARTICIPATION PERCENTILE
		88 - 93	1973 AVERAGE ALLOTMENT
		94 - 96	1973 PARTICIPATION PERCENTILE
		97 - 102	1974 AVERAGE ALLOTMENT
		103 - 105	1974 PARTICIPATION PERCENTILE
		106 - 111	1975 AVERAGE ALLOTMENT
		112 - 114	1975 PARTICIPATION PERCENTILE
		115 - 120	1976 AVERAGE ALLOTMENT
		121 - 123	1976 PARTICIPATION PERCENTILE
		124 - 129	1977 AVERAGE ALLOTMENT
		130 - 132	1977 PARTICIPATION PERCENTILE
		133 - 138	1978 AVERAGE ALLOTMENT
		139 - 141	1978 PARTICIPATION PERCENTILE
		142 - 147	1979 AVERAGE ALLOTMENT
		148 - 150	1979 PARTICIPATION PERCENTILE
		151 - 156	1980 AVERAGE ALLOTMENT
		157 - 159	1980 PARTICIPATION PERCENTILE
		160 - 162	TOTAL PARTICIPATION PERCENTILE
163	294	CARRY-ALONG VARIABLES	
		163 - 165	MEAN AGE @ LAST ENTRY
		166 - 168	MEAN AGE @ LAST SEPARATION
		169 - 171	MEAN ED @ LAST SEPARATION
		172 - 174	% ED < HIGH SCHOOL
		175 - 177	% ED WITH SOME HIGH SCHOOL
		178 - 180	% ED WITH SOME COLLEGE

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181 - 183	% ED COLLEGE GRAD.
184 - 186	% ED WITH ADV. DEGREES
187 - 189	% W1
190 - 192	% W2
193 - 195	% W3
196 - 198	% W4
199 - 201	% O1
202 - 204	% O2
205 - 207	% O3
208 - 210	% O4
211 - 213	% O5
214 - 216	% O6
217 - 219	% O7
220 - 222	% O8
223 - 225	% O9
226 - 228	% O10
229 - 231	% O11
232 - 234	MEAN COMM. OFFICER PGD.
235 - 237	MEAN ENTRY YEAR
238 - 240	%SOP1
241 - 243	%SOP2
244 - 246	%SOP3
247 - 249	%SOP4
250 - 252	%SOP5
253 - 255	%SOP6
256 - 258	% 0 DEPENDENTS
259 - 261	% 1 DEPENDENT
262 - 264	% 2 DEPENDENTS
265 - 267	% 3 DEPENDENTS
268 - 270	% 4+ DEPENDENTS
271 - 273	% 1+ DEPENDENTS
274 - 276	MEDIAN TIME IN GRADE
277 - 279	LONGEST TIME IN GRADE
280 - 282	SHORTEST TIME IN GRADE
283 - 285	MEAN MONTHS SINCE SEPARATION
286 - 288	% BLACK FEMALE
289 - 291	% NON-BLACK FEMALE
292 - 294	SAMPLING RATE (%)
295 - 299	1979 FT-PT EARNINGS RATIO
300 - 304	1980 FT-PT EARNINGS RATIO
305 - 309	1981 FT-PT EARNINGS RATIO
310 - 313	1979 ECI INFLATOR
314 - 317	1980 ECI INFLATOR
318 - 321	1981 ECI INFLATOR

OFFICER SAMPLE POPULATION WITH SSA DATA

GROUP BEG POS.	GROUP END POS.	ADDRESS	FIELD DESCRIPTION GROUP/ELEMENT
1	7	CELL IDENTIFICATION NUMBER	
		1	SERVICE CATEGORY
		2	RACE/SEX CATEGORY
		3 - 4	YEAR OF SERVICE CATEGORY
		5	EDUCATION/GRADE LEVEL CATEGORY
		6	YEAR OF SEPARATION CATEGORY
		7	MILITARY OCCUPATION CATEGORY
8	69	EARNINGS FROM SSA DATA	
		8 - 9	YEAR OF SEPARATION
		10 - 15	1972 WAGE EARNINGS
		16 - 21	1973 WAGE EARNINGS
		22 - 27	1974 WAGE EARNINGS
		28 - 33	1975 WAGE EARNINGS
		34 - 39	1976 WAGE EARNINGS
		40 - 45	1977 WAGE EARNINGS
		46 - 51	1978 WAGE EARNINGS
		52 - 57	1979 WAGE EARNINGS
		58 - 63	1980 WAGE EARNINGS
		64 - 69	1981 WAGE EARNINGS
70	153	GI-BILL DATA FIELDS	
		70 - 75	1972 AVERAGE ALLOTMENT
		76 - 78	1972 PARTICIPATION PERCENTILE
		79 - 84	1973 AVERAGE ALLOTMENT
		85 - 87	1973 PARTICIPATION PERCENTILE
		88 - 93	1974 AVERAGE ALLOTMENT
		94 - 96	1974 PARTICIPATION PERCENTILE
		97 - 102	1975 AVERAGE ALLOTMENT
		103 - 105	1975 PARTICIPATION PERCENTILE
		106 - 111	1976 AVERAGE ALLOTMENT
		112 - 114	1976 PARTICIPATION PERCENTILE
		115 - 120	1977 AVERAGE ALLOTMENT
		121 - 123	1977 PARTICIPATION PERCENTILE
		124 - 129	1978 AVERAGE ALLOTMENT
		130 - 132	1978 PARTICIPATION PERCENTILE
		133 - 138	1979 AVERAGE ALLOTMENT
		139 - 141	1979 PARTICIPATION PERCENTILE
		142 - 147	1980 AVERAGE ALLOTMENT
		148 - 150	1980 PARTICIPATION PERCENTILE
		151 - 153	TOTAL PARTICIPATION PERCENTILE
154	285	CARRY-ALONG VARIABLES	
		154 - 156	MEAN AGE @ LAST ENTRY
		157 - 159	MEAN AGE @ LAST SEPARATION
		160 - 162	MEAN ED @ LAST SEPARATION
		163 - 165	% ED < HIGH SCHOOL
		166 - 168	% ED WITH SOME HIGH SCHOOL

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169 - 171	% ED WITH SOME COLLEGE
172 - 174	% ED COLLEGE GRAD.
175 - 177	% ED WITH ADV. DEGREES
178 - 180	% W1
181 - 183	% W2
184 - 186	% W3
187 - 189	% W4
190 - 192	% O1
193 - 195	% O2
196 - 198	% O3
199 - 201	% O4
202 - 204	% O5
205 - 207	% O6
208 - 210	% O7
211 - 213	% O8
214 - 216	% O9
217 - 219	% O10
220 - 222	% O11
223 - 225	MEAN COMM. OFFICER PGD.
226 - 228	MEAN ENTRY YEAR
229 - 231	%SOP1
232 - 234	%SOP2
235 - 237	%SOP3
238 - 240	%SOP4
241 - 243	%SOP5
244 - 246	%SOP6
247 - 249	% 0 DEPENDENTS
250 - 252	% 1 DEPENDENT
253 - 255	% 2 DEPENDENTS
256 - 258	% 3 DEPENDENTS
259 - 261	% 4+ DEPENDENTS
262 - 264	% 1+ DEPENDENTS
265 - 267	MEDIAN TIME IN GRADE
268 - 270	LONGEST TIME IN GRADE
271 - 273	SHORTEST TIME IN GRADE
274 - 276	MEAN MONTHS SINCE SEPARATION
277 - 279	% BLACK FEMALE
280 - 282	% NON-BLACK FEMALE
283 - 285	SAMPLING RATE (%)
286 - 290	1972 FT-PT EARNINGS RATIO
291 - 295	1973 FT-PT EARNINGS RATIO
296 - 300	1974 FT-PT EARNINGS RATIO
301 - 305	1975 FT-PT EARNINGS RATIO
306 - 310	1976 FT-PT EARNINGS RATIO
311 - 315	1977 FT-PT EARNINGS RATIO
316 - 320	1978 FT-PT EARNINGS RATIO
321 - 325	1979 FT-PT EARNINGS RATIO
326 - 330	1980 FT-PT EARNINGS RATIO
331 - 335	1981 FT-PT EARNINGS RATIO
336 - 339	1972 PATCI/ECI INFLATOR
340 - 343	1973 PATCI/ECI INFLATOR
344 - 347	1974 PATCI/ECI INFLATOR
348 - 351	1975 PATCI/ECI INFLATOR
352 - 355	1976 PATCI/ECI INFLATOR
356 - 359	1977 PATCI/ECI INFLATOR
360 - 363	1978 PATCI/ECI INFLATOR
364 - 367	1979 PATCI/ECI INFLATOR
368 - 371	1980 PATCI/ECI INFLATOR
372 - 375	1981 PATCI/ECI INFLATOR

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OFFICER SAMPLE POPULATION WITH IRS DATA

GROUP BEG POS.	GROUP END POS.	ADDRESS	FIELD DESCRIPTION GROUP/ELEMENT
1	7		CELL IDENTIFICATION NUMBER
		1	SERVICE CATEGORY
		2	RACE/SEX CATEGORY
		3 - 4	YEAR OF SERVICE CATEGORY
		5	EDUCATION/GRADE LEVEL CATEGORY
		6	YEAR OF SEPARATION CATEGORY
		7	MILITARY OCCUPATION CATEGORY
8	78		EARNINGS FROM IRS DATA
		8 - 24	FILLER
		25 - 30	1973 WAGE EARNINGS
		31 - 36	1974 WAGE EARNINGS
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		43 - 48	1976 WAGE EARNINGS
		49 - 54	1977 WAGE EARNINGS
		55 - 60	1978 WAGE EARNINGS
		61 - 66	1979 WAGE EARNINGS
		67 - 72	1980 WAGE EARNINGS
		73 - 78	1981 WAGE EARNINGS
79	88		SCETGOY (10 DIGIT CELL IDENTIFIER)
		79	SERVICE
		80	RACE/SEX CATEGORY
		81	EDUCATION
		82	PERSONNEL TYPE
		83	GRADE LEVEL
		84	MILITARY OCCUPATION CATEGORY
		85 - 86	YEAR OF SEPARATION
		87 - 88	YEAR OF SERVICE GROUP CATEGORY
89	172		GI-BILL DATA FIELDS
		89 - 94	1972 AVERAGE ALLOTMENT
		95 - 97	1972 PARTICIPATION PERCENTILE
		98 - 103	1973 AVERAGE ALLOTMENT
		104 - 106	1973 PARTICIPATION PERCENTILE
		107 - 112	1974 AVERAGE ALLOTMENT
		113 - 115	1974 PARTICIPATION PERCENTILE
		116 - 121	1975 AVERAGE ALLOTMENT
		122 - 124	1975 PARTICIPATION PERCENTILE
		125 - 130	1976 AVERAGE ALLOTMENT
		131 - 133	1976 PARTICIPATION PERCENTILE
		134 - 139	1977 AVERAGE ALLOTMENT
		140 - 142	1977 PARTICIPATION PERCENTILE
		143 - 148	1978 AVERAGE ALLOTMENT
		149 - 151	1978 PARTICIPATION PERCENTILE
		152 - 157	1979 AVERAGE ALLOTMENT
		158 - 160	1979 PARTICIPATION PERCENTILE
		161 - 166	1980 AVERAGE ALLOTMENT

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167 - 169 1980 PARTICIPATION PERCENTILE
170 - 172 TOTAL PARTICIPATION PERCENTILE

173

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CARRY-ALONG VARIABLES

173 - 182 SCETGOY (10 DIGIT CELL IDENT.)
183 - 185 % CAT1, CAT2, CAT3A
186 - 188 % CAT3B
189 - 191 % CAT4
192 - 194 MEAN AFQT
195 - 197 MEAN AGE @ LAST ENTRY
198 - 200 MEAN AGE @ LAST SEPARATION
201 - 203 MEAN EDUCATION AT LAST SEPARATION
204 - 206 % E1
207 - 209 % E2
210 - 212 % E3
213 - 215 % E4
216 - 218 % E5
219 - 221 % E6
222 - 224 % E7
225 - 227 % E8
228 - 230 % E9
231 - 232 MEAN PAYGRADE
233 - 235 MEAN ENTRY YEAR
236 - 238 % 0 DEPENDENTS
239 - 241 % 1 DEPENDENT
241 - 244 % 2 DEPENDENTS
245 - 247 % 3 DEPENDENTS
248 - 250 % 4 OR MORE DEPENDENTS
251 - 253 % 1 OR MORE DEPENDENTS
254 - 256 MEDIAN TIME IN GRADE
257 - 259 LONGEST TIME IN GRADE
260 - 262 SHORTEST TIME IN GRADE
263 - 265 MEAN MONTHS SINCE SEPARATION
266 - 268 % BLACK FEMALE
269 - 271 % NON-BLACK FEMALE
272 - 274 SAMPLING RATE (%)
275 - 279 1979 FT-PT EARNINGS RATIO
280 - 284 1980 FT-PT EARNINGS RATIO
285 - 289 1981 FT-PT EARNINGS RATIO
290 - 293 1979 ECI INFLATOR
294 - 297 1980 ECI INFLATOR
298 - 301 1981 ECI INFLATOR

OFFICER SAMPLE POPULATION WITH SSA DATA

GROUP BEG POS.	GROUP END POS.	ADDRESS	FIELD DESCRIPTION GROUP/ELEMENT
1	7	CELL IDENTIFICATION NUMBER	
		1	SERVICE CATEGORY
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		3 - 4	YEAR OF SERVICE CATEGORY
		5	EDUCATION/GRADE LEVEL CATEGORY
		6	YEAR OF SEPARATION CATEGORY
		7	MILITARY OCCUPATION CATEGORY
8	17	SCETGOY (10 DIGIT CELL IDENTIFIER)	
		8	SERVICE
		9	RACE/SEX CATEGORY
		10	EDUCATION
		11	PERSONNEL TYPE
		12	GRADE LEVEL
		13	MILITARY OCCUPATION CATEGORY
		14 - 15	YEAR OF SEPARATION
		16 - 17	YEAR OF SERVICE GROUP CATEGORY
18	80	SSA DATA	
		18 - 19	YEAR OF SEPARATION
		20 - 25	1972 EARNINGS
		26 - 31	1973 EARNINGS
		32 - 37	1974 EARNINGS
		38 - 43	1975 EARNINGS
		44 - 49	1976 EARNINGS
		50 - 55	1977 EARNINGS
		56 - 61	1978 EARNINGS
		62 - 67	1979 EARNINGS
		68 - 73	1980 EARNINGS
		74 - 79	1981 EARNINGS
80	163	GI-BILL DATA FIELDS	
		80 - 85	1972 AVERAGE ALLOTMENT
		86 - 88	1972 PARTICIPATION PERCENTILE
		89 - 94	1973 AVERAGE ALLOTMENT
		95 - 97	1973 PARTICIPATION PERCENTILE
		98 - 103	1974 AVERAGE ALLOTMENT
		104 - 106	1974 PARTICIPATION PERCENTILE
		107 - 112	1975 AVERAGE ALLOTMENT
		113 - 115	1975 PARTICIPATION PERCENTILE
		116 - 121	1976 AVERAGE ALLOTMENT
		122 - 124	1976 PARTICIPATION PERCENTILE
		125 - 130	1977 AVERAGE ALLOTMENT
		131 - 133	1977 PARTICIPATION PERCENTILE
		134 - 139	1978 AVERAGE ALLOTMENT
		140 - 142	1978 PARTICIPATION PERCENTILE
		143 - 148	1979 AVERAGE ALLOTMENT
		149 - 151	1979 PARTICIPATION PERCENTILE

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152 - 157 1980 AVERAGE ALLOTMENT
158 - 160 1980 PARTICIPATION PERCENTILE
161 - 163 TOTAL PARTICIPATION PERCENTILE

164

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CARRY-ALONG VARIABLES

164 - 173 SCETGOY (10 DIGIT CELL IDENT.)
174 - 176 % CAT1, CAT2, CAT3A
177 - 179 % CAT3B
180 - 182 % CAT4
183 - 185 MEAN AFQT
186 - 188 MEAN AGE AT LAST ENTRY
189 - 191 MEAN AGE AT LAST SEPARATION
192 - 194 MEAN EDUCATION AT LAST SEPARATION
195 - 197 % E1
198 - 200 % E2
201 - 203 % E3
204 - 206 % E4
207 - 209 % E5
210 - 212 % E6
213 - 215 % E7
216 - 218 % E8
219 - 221 % E9
222 - 223 MEAN PAYGRADE
224 - 226 MEAN ENTRY YEAR
227 - 229 % 0 DEPENDENTS
230 - 232 % 1 DEPENDENT
233 - 235 % 2 DEPENDENTS
236 - 238 % 3 DEPENDENTS
239 - 241 % 4 OR MORE DEPENDENTS
242 - 244 % 1 OR MORE DEPENDENTS
245 - 247 MEDIAN TIME IN GRADE
248 - 250 LONGEST TIME IN GRADE
251 - 253 SHORTEST TIME IN GRADE
254 - 256 MEAN MONTHS SINCE SEPARATION
257 - 259 % BLACK FEMALE
260 - 262 % NON-BLACK FEMALE
263 - 265 SAMPLING RATE (%)
266 - 270 1972 FT-PT EARNINGS RATIO
271 - 275 1973 FT-PT EARNINGS RATIO
276 - 280 1974 FT-PT EARNINGS RATIO
281 - 285 1975 FT-PT EARNINGS RATIO
286 - 290 1976 FT-PT EARNINGS RATIO
291 - 295 1977 FT-PT EARNINGS RATIO
296 - 300 1978 FT-PT EARNINGS RATIO
301 - 305 1979 FT-PT EARNINGS RATIO
306 - 310 1980 FT-PT EARNINGS RATIO
311 - 315 1981 FT-PT EARNINGS RATIO
316 - 319 1972 PATCI/ECI INFLATOR
320 - 323 1973 PATCI/ECI INFLATOR
324 - 327 1974 PATCI/ECI INFLATOR
328 - 331 1975 PATCI/ECI INFLATOR
332 - 335 1976 PATCI/ECI INFLATOR
336 - 339 1977 PATCI/ECI INFLATOR
340 - 343 1978 PATCI/ECI INFLATOR
344 - 347 1979 PATCI/ECI INFLATOR
348 - 351 1980 PATCI/ECI INFLATOR
352 - 355 1981 PATCI/ECI INFLATOR

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Variable Description and Coding

IRS Officer File

GROUP I: Cell Identification Number. These variables define the cells.

- (1) Service Category
- 1 = Army
 - 2 = Navy
 - 3 = Marine Corps
 - 4 = Air Force
- (2) Race/Sex Category
- 1 = Female
 - 2 = Black, Male
 - 3 = Nonblack, Male
- (3) Year of Service (YOS) Category
(Year during which individual separated, equal to completed years plus one.)
- This variable is used to distinguish separatees (categories 1-9) from retirees (categories 10-16). If the DMDC separation code in the Separatee file indicated a retirement in a year before the 21st, this was recoded to 21 (category 10). In some programs, such retirement is possible. Note that, among others, disability retirements were excluded from the sample (see Appendix 1).
- 1 = years 3 or 4
 - 2 = year 5
 - 3 = years 6, 7
 - 4 = years 8, 9
 - 5 = years 10, 11
 - 6 = years 12, 13
 - 7 = years 14, 15
 - 8 = years 16, 17
 - 9 = years 18-20
 - 10 = year 21
 - 11 = year 22
 - 12 = year 23
 - 13 = years 24, 25
 - 14 = years 26, 27
 - 15 = years 28-30
 - 16 = years 31 and up
- (4) Education/Grade Level Category
- In the "officer" subfiles, codes 1-4 will not appear. Codes 5-8 will not appear in the "enlisted" subfiles.
- 1 = Enlisted, less than high school graduate, grade E6 and below.
 - 2 = Enlisted, less than high school graduate, grade E7 and above.
 - 3 = Enlisted, high school graduate and above, grade E6 and below.
 - 4 = Enlisted, high school graduate and above, grade E7 and above.
 - 5 = Officer, less than a high school graduate, warrant officers through grade 04.
 - 6 = Officer, less than high school graduate grade 05 and above.
 - 7 = Officer, high school and above, warrant officers thorough grade 04.
 - 8 = Officer, high school and above, grades 05 and above.

IRS Officer File (Cont'd)

(5) Year of Separation

In development work, this variable was commonly abbreviated YOS; "Year of Service" was called LOS, for "Length of Service."

Later years of separation will be added as data become available.

- 1 = 1972
- 2 = 1973
- 3 = 1974
- 4 = 1975
- 5 = 1976
- 6 = 1977
- 7 = 1978
- 8 = 1979
- 9 = 1980

(6) Military Occupation Category

As indicated, codes are interpreted differently for officers and enlisted personnel. See Appendix 2 for a comprehensive tabulation of these codes in terms of DoD and Service occupational specialty codes.

Officer

- 1 = Combat
- 2 = Aviation

- 3 = Scientist
Engineer

- 4 = Adminis-
tration,
Logistics

- 5 = Medical,
Dental

- 6 = Other

Enlisted

- 1 = Combat
- 2 = Electronics,
Communications,
Intelligence
- 3 = Electrician,
Mechanic,
Craftsman
- 4 = Medical,
Dental
- 5 = Support,
Administration,
Service, Supply
- 6 = Other

GROUP II: Earnings from IRS Data

These fields report tax-year earnings as reported on W-2 forms. The 1973-1978 fields are blank. For 1979, 80, and 81, earnings are truncated at the \$150,000 level. Earnings are only reported for years following the individual's year of separation from the Service. These earnings are not cell averages; they are the individual's actual reported earnings.

GROUP III: Carry-Along Variables

(A) GI Bill Data Fields

For year 1972-80, these variables indicate (1) the average allotment received by recipients (i.e., averaged only over recipients, not over the full cell) of GI Bill educational benefits, and (2) the participation percentile, or percent of the cell who received benefits.

(B) "Carry Along" (or "carry-on") Variables

- 1 Mean Age at Least Entry
- 2 Mean Age at Last Separation
- 3 Mean Education at Last Separation

It is possible and fairly common for a person to separate and reenlist more than once, and therefore appear more than once in the DMDC Separatee file from which this sample was taken. In such cases, only the last separation was taken for the person (see Appendix 1 for the distribution of multiple separation).

4-8 Percent Frequency Distribution of Educational Level

- 4 - Education less than high school
- 5 - High school graduate
- 6 - Some college
- 7 - College
- 8 - Advanced degree

9-23 Percent Frequency Distribution, by Pay Grade

24 Mean Commissioned Officer Pay Grade

This is the two-digit DMDC pay code:

- | | |
|-------|--------------------------|
| 1-9 | E1 - E9 |
| 10 | Warrant Officer, Unknown |
| 11-14 | W1 - W4 |
| 20 | Officer, unknown |
| 21-31 | O1 - O11 |

(B). "Carry Along" (or "carry-on") Variables (Cont'd)

25 Mean Entry Year

Coded by last two digits of calendar year, e.g., 54 = 1954

26-31 Percent Frequency Distribution, Source of Procurement

- 26 - SOP1: Military Academy
- 27 - SOP2: ROTC (scholarship or nonscholarship)
- 28 - SOP3: OCS or OTS (direct or in-service procurement)
- 29 - SOP4: Direct appointment (physician, dentist or other direct appointment)
- 30 - SOP5: Aviation Training Program (other than OCS or OTS)
- 31 - SOP6: Other or unknown

32-36 Percent Frequency Distribution

Number of dependents (0, 1, 2, 3, 4+ dependents)

37 Percent with one or more dependents

38 Median Time-in-Grade

39 Longest Time-in-Grade

40 Shortest Time-in-Grade

Time in person's current pay grade - in months

41 Sampling Rate

For cells from a universe with a population of more than 25, only 25 individuals were randomly sampled. The sampling rate is given here.

45-47 Full-Time/Part-Time Earnings Ratios

The earnings data we have do not distinguish between earnings at full-time and part-time work. Using data from the 1980 Census (Public Use Microdata Sample A), we define groups of veterans roughly comparable to the file cells in age (in each year for which we have IRS data), length of service (retired or not retired), and likely officer or enlisted status defined by attained education level and occupation: for these groups, ratios of the average earnings of full-time workers to average earnings of all workers were computed. These ratios can be used to inflate the earnings on this file to a "full-time equivalence."

Warning: some of the comparability groups in the Census sample were quite small and the full-time earnings ratios do not always make a smooth profile when arranged by age.

48-50 ECI Inflator

The Employment Cost Index was used to create these multipliers to inflate earnings to 1982 dollars; 1982 was chosen as the year of comparability for all studies produced by the QRMC.

SSA Officer File.

This file is identical to the IRS officer file, except for the earnings field. SSA earnings cover potentially more years than IRS (going back to 1973, the year following the earliest year of separation from the Service in the file). Earnings are reported only for workers in occupations or industries covered by Social Security, and only up to the ceiling on FICA taxable earnings.

Variable Description and Coding

IRS Enlisted File

GROUP I: Cell Identification Number.

These variables are defined exactly as in the Officer files.
 "SCETGOY" (Service, Category, Education, Type, Grade, Occupation, Year)
 repeats the same information as the Cell ID variables.

- | (1) | Service Category | 1 = Army
2 = Navy
3 = Marine Corps
4 = Air Force | | | | | | | | | | | | | | |
|-------------------------------|-----------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------------|------------|------------|--------------|-----------------------------------------------|------------------------|--------------------------------------|-------------------------------|---------------------|---------------------|----------------------------------------------|-----------|-----------|
| (2) | Race/Sex Category | 1 = Female
2 = Black, Male
3 = Nonblack, Male | | | | | | | | | | | | | | |
| (3) | Education | 1 = less than high school graduate.
2 = high school graduate and higher. | | | | | | | | | | | | | | |
| (4) | Personnel Type | 1 = Enlisted
2 = Officer | | | | | | | | | | | | | | |
| (5) | Grade Level | 1 = Grade E6 and below for enlisted, or warrants and O4 and below for officers.
2 = Grade E7 and above for enlisted, O5 and above for officers. | | | | | | | | | | | | | | |
| (6) | Military Occupation Category | <table border="0" style="width: 100%;"> <thead> <tr> <th style="text-align: left;"><u>Officer</u></th> <th style="text-align: left;"><u>Enlisted</u></th> </tr> </thead> <tbody> <tr> <td>1 = Combat</td> <td>1 = Combat</td> </tr> <tr> <td>2 = Aviation</td> <td>2 = Electronics, Communications, Intelligence</td> </tr> <tr> <td>3 = Scientist Engineer</td> <td>3 = Electrician, Mechanic, Craftsman</td> </tr> <tr> <td>4 = Administration, Logistics</td> <td>4 = Medical, Dental</td> </tr> <tr> <td>5 = Medical, Dental</td> <td>5 = Support, Administration, Service, Supply</td> </tr> <tr> <td>6 = Other</td> <td>6 = Other</td> </tr> </tbody> </table> | <u>Officer</u> | <u>Enlisted</u> | 1 = Combat | 1 = Combat | 2 = Aviation | 2 = Electronics, Communications, Intelligence | 3 = Scientist Engineer | 3 = Electrician, Mechanic, Craftsman | 4 = Administration, Logistics | 4 = Medical, Dental | 5 = Medical, Dental | 5 = Support, Administration, Service, Supply | 6 = Other | 6 = Other |
| <u>Officer</u> | <u>Enlisted</u> | | | | | | | | | | | | | | | |
| 1 = Combat | 1 = Combat | | | | | | | | | | | | | | | |
| 2 = Aviation | 2 = Electronics, Communications, Intelligence | | | | | | | | | | | | | | | |
| 3 = Scientist Engineer | 3 = Electrician, Mechanic, Craftsman | | | | | | | | | | | | | | | |
| 4 = Administration, Logistics | 4 = Medical, Dental | | | | | | | | | | | | | | | |
| 5 = Medical, Dental | 5 = Support, Administration, Service, Supply | | | | | | | | | | | | | | | |
| 6 = Other | 6 = Other | | | | | | | | | | | | | | | |

IRS Enlisted File (Cont'd)

- (7) Year of Separation
- 1 = 1972
 - 2 = 1973
 - 3 = 1974
 - 4 = 1975
 - 5 = 1976
 - 6 = 1977
 - 7 = 1978
 - 8 = 1979
 - 9 = 1980
- (8) Year of Service (YOS) Category
- 1 = years 3 or 4
 - 2 = year 5
 - 3 = years 6, 7
 - 4 = years 8, 9
 - 5 = years 10, 11
 - 6 = years 12, 13
 - 7 = years 14, 15
 - 8 = years 16, 17
 - 9 = years 18-20
 - 10 = year 21
 - 11 = year 22
 - 12 = year 23
 - 13 = years 24, 25
 - 14 = years 26, 27
 - 15 = years 28-30
 - 16 = years 31 and up

(These "SCETGOY" codes are repeated twice, once before the GI Bill data fields and once before the "Carry Along Variables.")

Group II, IIIA: The GI Bill fields and the wage earnings fields are exactly as described for the IRS Officer file.

Group IIIB: The carry-along variables for enlisted people differ slightly from those of officers.

- (9) % Cat 1, Cat 2, Cat 3A
- (10) % Cat 3B
- (11) % Cat 4

These three variables give a %-frequency distribution of the cell by AFQT test category. Categories 1, 2, and 3A, comprising the upper fifty percent of the normal AFQT distribution, are grouped together.

- (12) Mean AFQT
- (13) Mean Age at Last Entry
- (14) Mean Age at Last Separation
- (15) Mean Education at Last Separation

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- (16-24) % E1
- .
- .
- .
- % E9

These nine variables provide a %-frequency distribution of the cell by enlisted pay grade.

- (25) % 0 dependents
- (26) % 1 dependent
- (27) % 2 dependents
- (28) % 3 dependents
- (29) % 4 or more dependents
- (30) % 1 or more dependents

These variables provide the cell distribution of number of dependents.

- (31) Median Time-in-Grade
- (32) Longest Time-in-Grade
- (33) Shortest Time-in-Grade
- (34) Mean Months Since Separation
- (35) % Black Female
- (36) % Non-Black Female
- (37) Sampling Rate

SSA Enlisted File.

The contents of this file are the same as those of the IRS Enlisted file, except that Earnings are reported for the same years and with the same coverage as described in the SSA Officer File. Variables are ordered slightly differently in the two Enlisted files (see the layout sheets for details).

Appendix 1

Sample Screening, Stratification, and Selection from DMDC Separation Files for QRMC Earnings History File

1. Screening

The DMDC Separation Files contain records on some 6.7 million enlisted personnel and 468,000 officers who have separated from the military since 1972. Records from these files were sampled and merged with earnings data from the Internal Revenue Service (IRS) and Social Security Administration (SSA) in order to provide a source of data for the analysis of post-service earnings of military personnel.

The DMDC Separation Files are organized with one record for each separation from the Service; thus a given individual may appear several times if he or she had discontinuous service in the military. The frequency of multiple separations is shown by the following table.

	<u>Enlisted</u>	<u>Officers</u>
Individuals on file:	6,680,242	468,743
Separations per individual:		
1.	5,390,843	460,463
2.	867,491	7,740
3.	308,683	446
4.	92,530	62
5.	18,032	19
6.	2,399	6
7.	242	4
8.	21	2
9.	1	1

For those with multiple separations, only the last separation was considered. From the above totals, observations were deleted for the following criteria, in the given order.

	<u>Enlisted</u>	<u>Officers</u>
Total	6,680,242	468,743
Separation date out of range (1972-1980)	-(1,838,363)	-(143,642)
Unknown	5,745	6
Service transaction separation	846,203	10,866
Separated for medical disqualification	206,739	9,092
Separated for death	22,029	3,747
Entry into officer program	60,148	(NA)
Undesirable behavior or performance	1,001,814	18,047

(Cont'd)	<u>Enlisted</u>	<u>Officers</u>
Unknown length of service	1,295	862
Less than 2 years service	361,230	18,991
Sex unknown	4	45
Males, race unknown	1,606	432
Education unknown	<u>14,620)</u>	<u>7,730)</u>
Final universe	2,320,446	255,284

2. Sample Stratification

The remaining 2,320,446 enlisted personnel and 255,284 officers were arranged in cells according to their values of the following variables: service (4 categories), sex and race (3 categories), pay grade (low and high: 2 categories), education (2), year of separation (9), length of service (16), and occupation category (6). This results in a possible total of 41,472 cells each for officers and enlisted; however, most of these cells were empty.

These cells form the basis for our sample selection. The following table shows the number of cells we have for various cell populations.

<u>Cell Population</u>	<u>Officers</u>		<u>Enlisted</u>	
	<u>No. of Cells</u>	<u>Total Population</u>	<u>No. of Cells</u>	<u>Total Population</u>
0	30,299	0	26,827	0
1,2	4,053	5,278	4,264	5,680
3-10	3,388	18,914	3,734	20,292
11-20	1,348	19,963	1,508	22,281
21-25	392	8,949	457	10,460
26+	1,992	202,180	4,682	2,261,733
Total	41,472	255,284	41,472	2,320,446

We select records from these cells using the following method: we select everyone (officers and enlisted) from cells of size 3 to 25 (and none from cells of size 1 or 2). Then, from cells of size 26 or higher, we randomly select 25 records. This results in the following sample sizes:

	<u>Officers</u>	<u>Enlisted</u>
From cells 3-25	47,826	53,033
From cells 26+	<u>49,800</u> (25 x 1992)	<u>117,050</u> (25 x 4682)
Total	97,626	170,083

Total officers and enlisted: 267,709

3. Random Selection Procedure. For cells of size 25 or less, no random sampling will be done; we simply eliminate those in cells of 1 or 2, and take all records in cells of sizes 3 to 25.

For a cell of size 26 or more, let N be the cell size. Then $K = 25/N$ is the sampling frequency. We draw, for each cell, a random number between 1 and K , select the corresponding record for that cell (the R th record to appear in the cell, where R is the random draw), and then select every K th record in that cell. Records on the separation file are arranged in order of Social Security Number; this systematic random sampling procedure is widely used for such files. The final sample was arranged in order of increasing SSN to facilitate matching with IRS and Social Security files.

Appendix 2

Military Occupation Groups

Aggregate occupation codes for enlisted personnel were based on the Primary Occupation Group as coded in DMDC's "loss" files. In the loss files, Primary Occupation is given as a three-digit DoD Occupation Code, a DoD-wide coding scheme based on the Services' individual occupational classification systems. For officers, our aggregate occupation codes are based on the DoD code (which is a two-digit code for officers), with many exceptions based on the more detailed Service-specific Primary Military Occupation Specialty code, also given on the DMDC loss file. For a detailed definition and a concordance between the DoD and Service codes, see Occupational Conversion Manual, Department of Defense OASD/MRA&L, publication DoD 1312.1-M. Following is a list of the aggregation occupation codes contained in the Post-Service Earnings History File, with the DoD and Service codes that are contained in each.

For enlisted people the aggregates are based on the first digit of the DoD codes:

<u>Aggregate Code</u>	<u>DoD One-Digit Codes</u>
1 (Combat)	0 (Infantry, Gun Crews, and Seamanship Specialists)
2 (Electronics, Communica- tions, Intelligence)	1 (Electronic Equipment Repairmen) 2 (Communications and Intelligence Specialists)
3 (Electricians and Mechanics, Craftsmen)	4 (Other Technical and Allied Specialists) 6 (Electrical/Mechanical Equip- men Repairmen)
4 (Medical, Dental)	7 (Craftsmen) 3 (Medical and Dental Specialists)
5 (Support, Administration, Service, and Supply)	5 (Support and Administration) 8 (Service and Supply)
6 (Other)	9 (Non-occupational)

Occupation coding for officers was more complicated. The following pages list, by Service branch, the occupation codes within each of the aggregates used on the Earnings History File. These are defined in terms of DoD codes and Service-specific military occupation codes (MOS or Service Occ Code). In these tables, "X" is used as a place-holder. MOS 14X is any three-digit MOS code beginning with 14.

Officer Occupation Categories

ARMY

(1) Combat:

DoD Codes: 2E, 2F
Plus all others with MOS 14X, 77X
And any DoD code 2G not elsewhere classified.

(2) Aviation:

DoD Codes: 2A, 2B, 2C, 2D

(3) Scientists and Engineers:

DoD Codes: 5A, 5B, 5C, 5D, 5J, 5L
4A, 4G, 4H, 4M, 4C (except MOS 25X), 4K
Plus all others with MOS 51X
or old MOS 75XX, 78XX, 79XX, 7750
And any DoD codes 4X, 5X not elsewhere classified.

(4) Administration and Logistics:

DoD Codes: 1A, 1B
4B, 4D, 4E, 4F, 5E, 5K, 5M
7A, 7C, 7D, 7E, 7F, 7G, 7L, 7N
8A, 8B, 8C, 8D, 8E, 8F, 8G (all 8's)
Plus old MOS 48XX
And any DoD codes 1X not elsewhere classified.

(5) Medical and Dental:

DoD Codes: 6X (all 6's), 7M

(6) Other:

DoD Codes: 2G (except MOS 14X)
3A, 3B, 3C, 4J, 4L, 4N, 5F, 5G, 5H, 7B, 7H
Plus MOS 25X

Officer Occupation Categories

NAVY

(1) Combat:

Service Occ Codes: 62XX to 65XX except 6582, 6583, 6584
6704 to 6707
90XX to 93XX except 9021, 9034, 9082
9404, 9405, 9450, 9464, 9465
9480, 9485, 9486
3215
And any other DoD code 2E to 2G not elsewhere
classified.

(2) Aviation:

Service Occ Codes: 8617 to 8199
85XX, 86XX
3217, 3219
And any other DoD code 2A, 2B, 2C, or 2D not
elsewhere classified.

(3) Scientists and Engineers:

Service Occ Codes: 0822, 0840, 0841
20XX to 23XX, except 2240, 2245, 2325
42XX to 47XX
59XX to 61XX, except 5963 to 5965, 5977
67XX except 6704 to 6707
69XX except 6914, 6942, 6990, 6999
71XX
7215, 7251, 7273
73XX to 80XX except 7450, 7460
8100 to 8152
87XX, 9900 to 9920
And DoD codes 4X, 5X not elsewhere
classified.

(4) Administration and Logistics:

Service Occ Codes: 0814
10XX to 19XX
24XX
26XX
30XX to 35XX except 3215, 3217, 3219
39XX
57XX
5963 to 5965
6914, 6942, 6999
88XX
942X, 9466 to 9478, 9497
97XX
9021, 9034, 9082, 9286, 9535, 9555, 9580, 9960, 9965
Also, any DoD codes 1X, 7X, 8X not elsewhere
classified. App P

Officer Occupation Categories

NAVY (Cont'd)

(5) Medical and Dental:

Service Occ Codes: 00XX to 09XX except 0814, 0822, 0840, 0841,
0868

(6) Other:

Service Occ Codes: 0868, 2240, 2245, 2325
25XX, 27XX, 37XX
5977, 6582, 6583, 6584
6990, 72XX (except 7215, 7251, 7273)
7450, 7460
95XX, 96XX, 98XX except 9535, 9555, 9580

Officer Occupation Codes

AIR FORCE

(1) Combat:

Service Occ Codes: 0086, 18XX
Any DoD codes 2E to 2G not elsewhere
classified.

(2) Aviation:

Service Occ Codes: 0006, 0007, 0036, 0066, 10XX to 17XX
22XX
And DoD codes 2A, 2B, 2C, 2D not elsewhere
classified.

(3) Scientists and Engineers:

Service Occ Codes: 20XX
25XX to 29XX
3055, 3096
55XX to 57XX
91XX
And DoD codes 4X, 5X not elsewhere
classified.

(4) Administration and Logistics:

Service Occ Codes: 0005
0016, 0026
0046, 0056, 0076
0096
05XX
0900
092X to 096X
23XX
31XX
40XX
51XX
60XX to 79XX
87XX
And DoD codes 1X, 7X, 8X not elsewhere
classified.

(5) Medical and Dental:

Service Occ Codes: 010X
0113
90XX
92XX to 99XX
And DoD codes 6X not elsewhere classified.

Officer Occupation Codes

AIR FORCE (Cont'd)

(6) Other:

Service Occ Codes: 0001, 0002
0003, 0004
0110-0112
02XX
0910
30XX except 3055
80XX to 82XX
88XX to 89XX

Officer Occupation Codes

MARINE CORPS

(1) Combat:

Service Occ Codes: 03XX, 08XX
18XX to 23XX
2802, 2830, 2805
57XX, 5902, 5907, 5910, 5950
6002, 6007
9906, 9911, 9925, 9930, 9952, 9953, 9956,
9962
And any DoD codes 2X not elsewhere
classified.

(2) Aviation:

Service Occ Codes: 75XX
9907, 9912, 9960

(3) Scientists and Engineers:

Service Occ Codes: 6005
68XX
9620 to 9636
9650 to 9656
And DoD codes 4X, 5X not elsewhere
classified.

(4) Administration and Logistics:

Service Occ Codes: 01XX, 04XX
1330, 1360, 1390
15XX, 30XX
31XX to 43XX
46XX to 55XX
5970
9602, 9640 to 9648
9670 to 9680, 9699, 9903 to 9905, 9908, 9910,
9913, 9950, 9981
Also, DoD codes 1X, 7X, 8X not elsewhere
classified.

(5) Medical and Dental:

None

(6) Other:

Service Occ Codes: 02XX, 11XX, 14XX, 25XX, 26XX, 2810, 2820,
44XX, 58XX
63XX to 65XX
70XX to 73XX
9658 to 9660, 9688, 9914, 9947, 9980

Officer Occupation Categories

ARMY WARRANT

(1) **Combat:**

None

(2) **Aviation:**

MOS Codes: 10XX

(3) **Scientists and Engineers:**

None

(4) **Administrative and Logistics:**

All those not in the other 5 categories.

(5) **Medical and Dental:**

MOS Codes: 01XX, 05XX except 052A, 053A

(6) **Other:**

MOS Codes: 31XX, 44XX, 84XX, 95XX
96XX, 97XX, 98XX, 052A, 053A

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**APPENDIX Q
MILITARY RETIREES' AND SEPARATEES'
POST-SERVICE EARNINGS**



COOPERS & LYBRAND

MILITARY RETIREES' AND SEPARATEES'
POST-SERVICE EARNINGS

Coopers & Lybrand
January, 1984

APPENDIX Q

PREFACE

This report analyzes the post-service wage and salary earnings of former military personnel relative to comparably aged and educated Census veterans. Post-service earnings are relevant to two important issues: 1) retention behavior of current military personnel and 2) the well-being of former military personnel who may face poor earnings prospects in their post-service careers.

The report was prepared for the Fifth Quadrennial Review of Military Compensation and was written by Richard V.L. Cooper, John Gunther-Mohr, Lucinda Lewis, and Robert Zuraski. Robert Vandersluis provided valuable assistance. The report gained much from the analytic support of Major Roy Smoker of the Fifth Quadrennial Review of Military Compensation, and Zahava Doering, Kyle Johnson and Melanie Martindale of the Defense Manpower Data Center. Finally, the analysis would not have been possible without the construction of the data bases by the staff of the Defense Manpower Data Center, the Internal Revenue Service and the Social Security Administration. Substantial effort over a very short time frame was required to prepare the data bases for our analysis.

APPENDIX Q

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EXECUTIVE SUMMARY

APPENDIX Q

EXECUTIVE SUMMARY

The military compensation system has been an important public policy issue for at least the past 15 years. The Fifth Quadrennial Review of Military Compensation (QRMC) was officially established October 1, 1982 to evaluate the military retirement system and certain special and incentive pays received by military personnel, in relation to national security objectives, force management concerns, and cost. For the Fifth QRMC, Coopers & Lybrand has examined the post-service earnings of officers and enlisted personnel separating from the military both before and after eligibility for retirement benefits.

Post-service earnings have a potentially significant, although indirect, effect on two important issues. First, individuals' potential post-service earnings affect retention behavior. Throughout an individual's military career, the opportunities available in the civilian work force will have an influence on the individual's decision to separate or remain. Second, to the extent that the earnings of those separating or retiring from the military are lower than their civilian peers, the welfare of former military personnel is a legitimate concern.

The analysis in this report examines a new data base developed for the Fifth QRMC by the Defense Manpower Data Center, the Internal Revenue Service and the Social Security Administration. The data are drawn from reliable, consistent records covering a large sample of those separating before retirement eligibility (separates) as well as those retiring after 20 or more years of service (retirees). This sample of retirees and separates is compared to a subgroup of the Census Public Use Microdata Sample comprised of non-disabled veterans between the ages of 16 and 65.

The pattern of financial incentives differs for officers and enlisted personnel, as shown in Figures 1 and 2. The figures depict the magnitude of the post-service earnings differential for typical officers and enlisted personnel leaving the military after 4, 8, 12, 16, 20 and 25 years Length of Service (LOS). The earnings differentials portrayed in Figures 1 and 2 do not include the effects of retirement benefits for

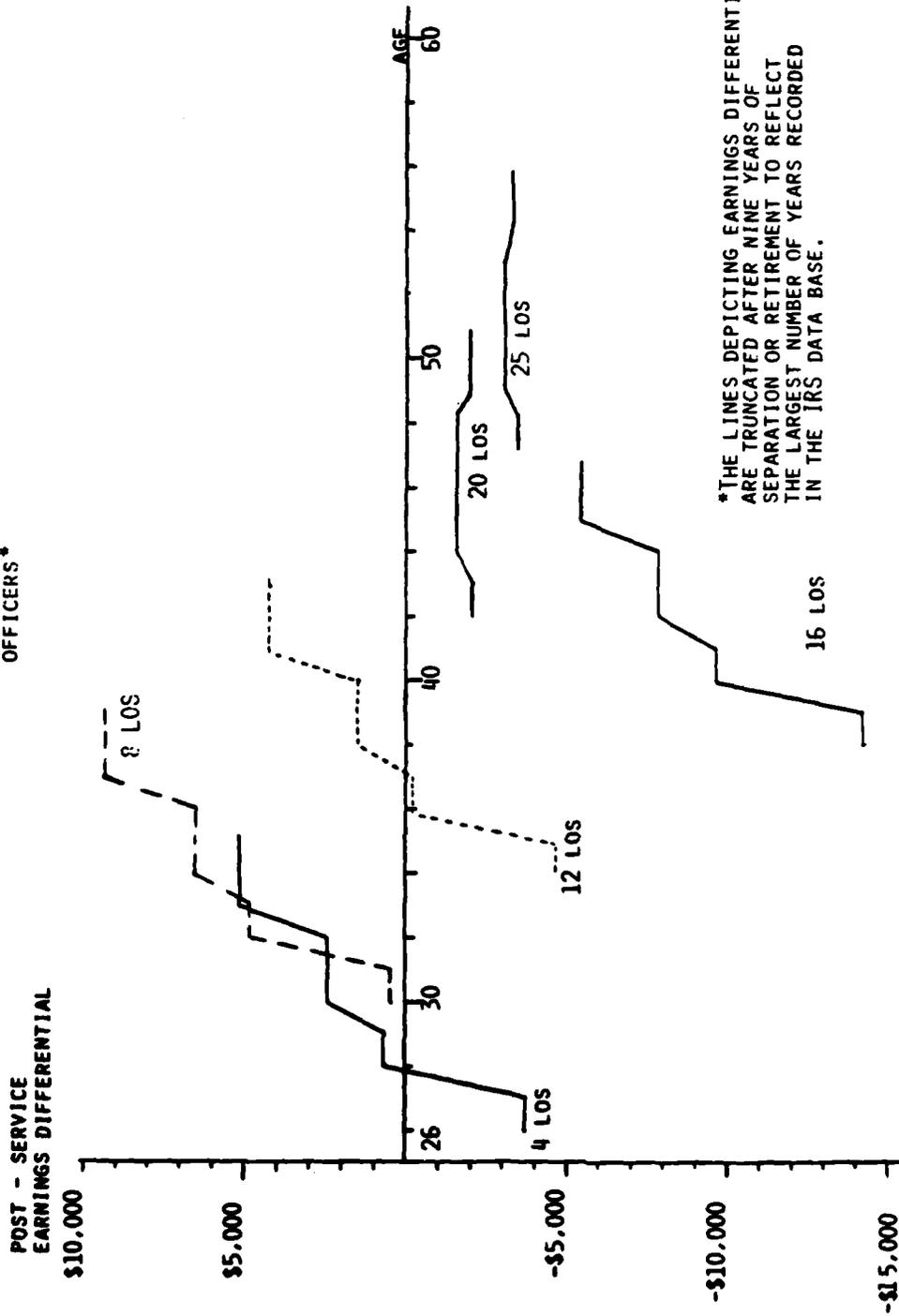
retirees.* For officers, military service appears to provide valuable experience which increases post-service earnings relative to their Census veteran peers. Figure 1 shows that officer separatees fare better relative to their civilian peers with each additional year of service through eight. After the eighth year post-service earnings decline relative to the Census veteran comparison group with each additional year of service through 25. Officers who retire, rather than separate, from military service earn slightly less than their Census veteran peers, but fare much better than those individuals who separated just before becoming eligible for retirement benefits.

Enlisted personnel face financial disincentives to remaining in military service beyond their fourth year as shown in Figure 2. With each year of service beyond four, the post-service earnings of enlisted personnel slip further and further behind their Census veteran peers. Enlisted personnel retiring after 20 or 25 years of service earn substantially less than their Census veterans counterparts, although retirees fare better in relation to Census veterans than do those enlisted personnel separating with 16 to 19 years of service.

These findings about the effect of career length hold for the long-term earnings of those who have weathered the transition from the military to the civilian work force. For some groups the transition is not smooth, even for those working full time. Officer separatees go through at least a seven year period when their earnings are substantially below their long-term levels relative to their Census veteran counterparts, as shown in Figure 1. The figure shows that for officers separating after different length careers, the earnings of the officer separatees increase more rapidly than those of their Census peers.

* The data base employed allows differentials to be estimated directly only for the post-service periods shown in figures 1 and 2. When longer term comparisons are needed, as in estimating the present discounted value of future earnings, it is assumed that the last directly calculated differential remains unchanged throughout the individual's working life.

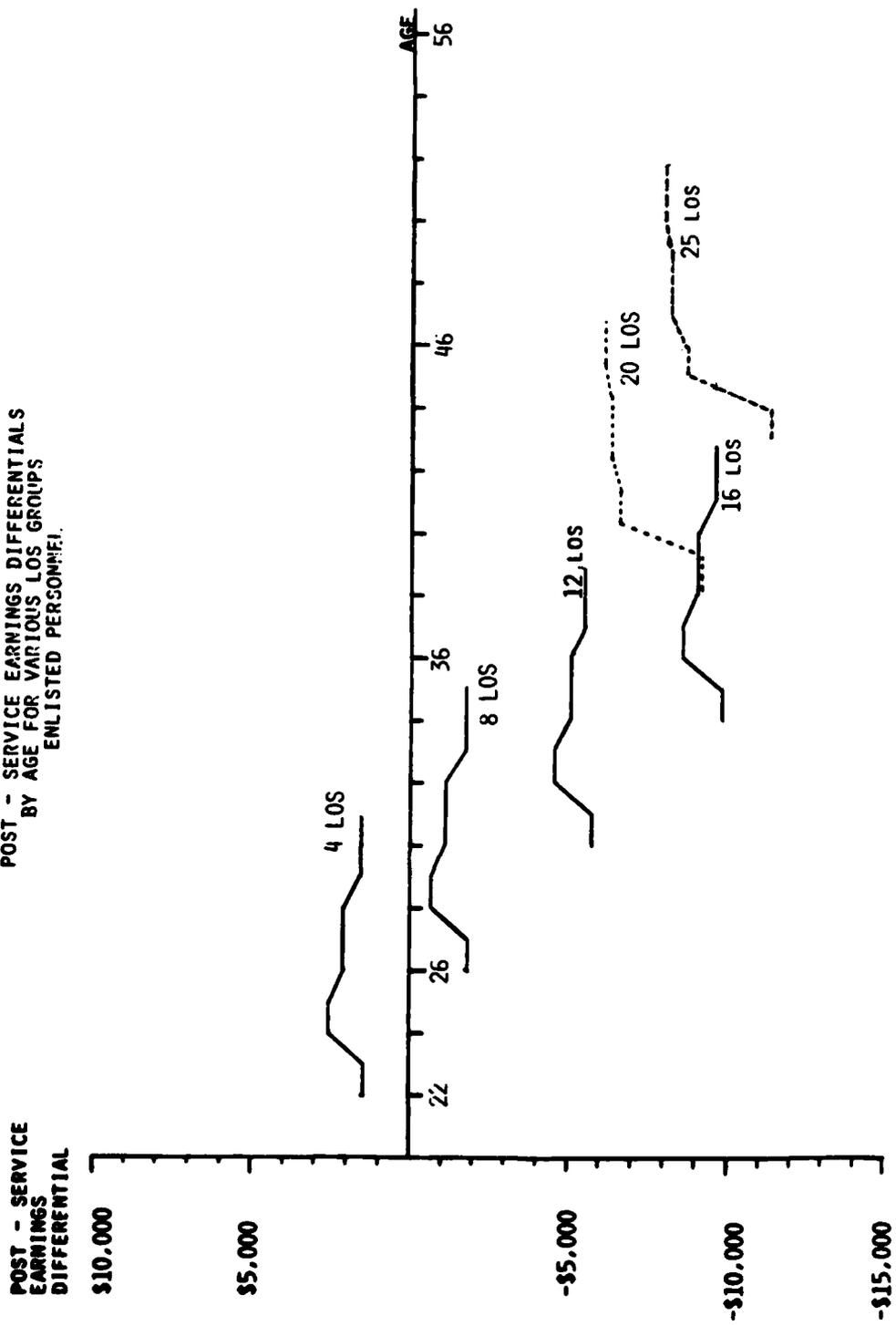
FIGURE 1
 POST - SERVICE EARNINGS DIFFERENTIALS
 BY AGE FOR VARIOUS LOS GROUPS
 OFFICERS*



*THE LINES DEPICTING EARNINGS DIFFERENTIALS
 ARE TRUNCATED AFTER NINE YEARS OF
 SEPARATION OR RETIREMENT TO REFLECT
 THE LARGEST NUMBER OF YEARS RECORDED
 IN THE IRS DATA BASE.

APPENDIX Q

FIGURE 2
 POST - SERVICE EARNINGS DIFFERENTIALS
 BY AGE FOR VARIOUS LOS GROUPS
 ENLISTED PERSONNEL



In contrast to officer separatees our cross-sectional analysis of officer retirees' 1981 earnings does not show much of a transition period during which retirees' earnings rise more rapidly than the earnings of their civilian counterparts. Figure 1 shows only a slight reduction in the earnings differential in the first four years of retirement for officers after 20-year and longer careers. However, our longitudinal analysis indicates that there is a transition for officer retirees as well as separatees, as did Cooper's earlier work based on the 1977 Dod Survey of Retirees.

Enlisted personnel retiring from military service after twenty years or more and working full time in their first year of retirement earn about \$9,200 less than their Census veteran peers also working full time. As shown in Figure 2, this gap closes to about \$7,000 after the first year of retirement and narrows by another \$700 over the retiree's next six years in the civilian work force, but remains near \$6,300 over the remainder of the retiree's civilian career. As with officer retirees, our cross-sectional analysis does not reveal much of a transition effect for enlisted separatees, but our longitudinal analysis does indicate that it exists.

Not surprisingly, officers and enlisted personnel working in different military occupations do not fare equally well in the civilian work force. In general, those with timely and relevant skills fare better in their post-service careers. Military personnel who worked as scientists, engineers, physicians and dentists earned much more, on average, than all Census veterans, and earned about the same as Census veterans in comparable occupations. Individuals retiring or separating with less timely skills fared worse than Census veterans in the same occupation. For example, retired aviators earned less than all Census veterans and much less than Census veteran aviators. In contrast, aviators who separated earlier in their military careers fared much better in their post-service employment. While the skills of both groups of aviators may be similar, the retirees appear either to have a greater difficulty finding jobs in aviation comparable to those held in the military, or simply to have chosen to leave the field of aviation for lower-paying jobs.

The prospect of declining post-service earnings relative to civilians as an individual stays longer in the military creates financial incentives that probably affect the decision to separate or retire. The nature of these financial incentives can change over the course of an individual's career, and is determined in part by the value placed on military experience by civilian employers, as well as the structure of retirement pay and in-service pay.

One measure of the changing financial incentives is the present discounted value of expected future earnings streams, calculated at different career points for military personnel. The present value of future earnings is highest for an eight-year military career length for officers with a high rate of time preference (discount rate). For those officers with lower rates of time preference, the present value of expected future earnings (including retirement pay) is highest for a thirty-year military career length. For enlisted personnel, a four-year military career length has the highest present value for all discount rates used. For enlisted males remaining in the military longer than four years, a thirty-year length of service has the highest present value. Thus financial incentives for officers are in general for eight-year career lengths, and for enlisted personnel are in general for four-year career lengths; once those points have been passed, the financial incentives are to remain until retirement eligibility.

The analysis in this report provides a broad understanding of the factors affecting the post-service earnings differentials of both separatees and retirees. The differences between retirees and separatees can have important effects on retention behavior. To the extent that separatees working full time fare better than full-time retirees in their post-service careers, current officers and enlisted personnel face financial incentives to choose shorter military careers and enter the civilian work force to increase their post-service earnings potential. While many other factors, including the nature of retirement benefits as well as non-economic factors, affect retention behavior, the analysis of post-service earnings can provide policymakers important insights about the retention behavior of current officers and enlisted personnel.

I. INTRODUCTION

The military compensation system has been an important public policy issue for at least the past 15 years. The compensation system is one of the military's principal tools for attracting and retaining the required number and types of personnel. The compensation system also has important consequences for the way the force is managed. And, the compensation system is a key determinant of military manpower costs. It is thus important to understand the nature of the incentives for military personnel to remain in or leave the military, so that military manpower management may respond to changing conditions in the civilian marketplace and thereby ensure the efficient satisfaction of changing manpower needs to meet national security objectives.

To address these issues, the Fifth Quadrennial Review of Military Compensation (QRMC) was officially established October 1, 1982 to evaluate the military retirement system and certain special and incentive pays received by military personnel, in relation to national security objectives, force management concerns, and cost. In support of the QRMC effort, Coopers & Lybrand has examined one issue related to the compensation system, the post-service wage and salary earnings of officers and enlisted personnel separating from the military both before and after eligibility for retirement benefits.

The military must compete with civilian employers to both attract and retain personnel with the needed skills and attributes. Military personnel, just as civilian employees, decide whether to remain in their job based on a number of factors, such as working conditions, geographic location, career prospects, current salary and other earnings opportunities. This report focuses on only one factor, the potential post-service wage and salary earnings of military personnel. To examine this factor, we analyzed the differences between the wage and salary earnings of military personnel after leaving military service and the earnings of their comparably aged and educated civilian peers. This focus helps manpower management to evaluate the incentives created by post-service earnings opportunities. To the extent that military personnel can earn more in the civilian economy -- and

are knowledgeable about such opportunities -- the military must pay more, all other factors held constant, to retain the requisite skilled and trained personnel. Information about post-service earnings can also help to assess the welfare of retired or separated military personnel. Former military personnel, particularly retirees, may fare poorly in their post-service careers and therefore could merit special consideration.

The effect on retention behavior of the perceptions, expectations and attitudes of current military personnel is not examined in this report and thus requires separate study. Important issues not discussed in this report are how actual post-service earnings differentials affect the expectations of current military personnel, and how these expectations together with preferences about working conditions, geographic location, career prospects and non-economic factors, affect retention behavior.

To examine the interaction of post-service earnings and the retirement system, this report analyzes an important new data base developed for the QPMC by the Defense Manpower Data Center (DMDC), the Internal Revenue Service (IRS) and the Social Security Administration (SSA). This data base has several important advantages over previous data obtained through the Census Bureau and mail surveys (e.g., 1977 DoD Survey of Military Retirees). First, it is based on reliable, consistent data from military personnel files and IRS/SSA records. Second, for the first time, a large number of individuals separating before retirement eligibility have been included in a data base. Third, the data base provides the capability to examine post-service earnings differentials within occupations. This capability provides a unique contribution to the literature on military compensation; no previous study has examined how individuals in specific occupations fare in their post-service careers. This data base supports the analysis of such questions as:

- (1) Do military retirees and separatees earn more or less than comparably aged and educated civilians and working veterans?

- (2) Is there a transition period following active service during which retirees and separatees earn appreciably less than they will later in their careers? If so, how long is this transition? What is the magnitude of any reductions in earnings?
- (3) Does length of service affect retirees' and separatees' post-service earnings?
- (4) Does military occupation affect post-service earnings?

The analysis of retirees' and separatees' post-service earnings presented in this report is based on the IRS/SSA data base, but it gains much through insights obtained in earlier work. Chapter II reviews findings of previous studies, discusses the approach used to estimate post-service earnings, and evaluates the data sources used in the analysis. An econometric model of post-service wage and salary earnings only, estimated for officer and enlisted personnel, is described in Chapter III. In Chapter IV, separate models for six occupational groups are described. Chapter V presents graphs depicting the life course earnings of military personnel -- including in-service earnings, post-service wage and salary earnings, and retirement pay, where applicable -- as well as present discounted values of selected career earnings streams. A longitudinal analysis based on earnings reported to the Social Security Administration for a sample of those leaving military service between 1972 and 1980 is described in Chapter VI. The longitudinal data could be analyzed further, and such analysis could have a bearing on the interpretation of the cross-sectional analysis discussed in this report. However, the technical difficulties resulting from the truncation of the distribution of earnings at the Social Security maximum made such analysis impossible within the time frame of this study. Chapter VII discusses the implications and conclusions of the analysis.

II. DATA SOURCES AND APPROACH

This chapter contains a brief description of our approach (a more detailed description is presented in Chapter III), followed by a description of the data on which this report is based. This chapter concludes with a comparison of the report's data with previously used data bases.

Approach

In order to assess the relationship between military retiree or separatee earnings, and civilian earnings, it is essential to compare similar groups. Comparisons between groups that do not have the same individual characteristics and attributes can be misleading. For example, without taking education into account, a comparison between the earnings of the entire civilian working population and those of post-graduate military separatees would overstate the overall average civilian - separatee earnings difference. Further, such a comparison would imply to policymakers that the potential civilian earnings available to military separatees are generally higher than they are in fact.

Ideally, the individual characteristics and attributes used to construct comparison groups of former military personnel and civilians should include personal preferences related to work as well as mental and physical characteristics. For example, a different comparison would be in order for military retirees voluntarily working half time than for those involuntarily working half time. In addition, appropriate comparison groups must be selected with reference to the question at issue. In the above example, if one were concerned about the well-being of military retirees, then one would like to determine the extent to which retirees choose or are forced to work less than full time. However, if one wished to adjust the timing and magnitude of military pay in order to affect force size and composition to meet national defense goals, an assessment of the extent of voluntary part-time employment would not be appropriate; rather the focus would be the civilian versus military earnings available to groups defined on the basis of key variables. Unfortunately, some of these variables, such as personal characteristics, are difficult, if not impos-

sible, to measure. Here, we have chosen comparison groups with the goal of minimizing the degree to which comparisons are biased by such considerations.

We have chosen several individual attributes with which to stratify our data sets and obtain similar comparison groups. First, the military and census comparison groups represent the same work status categories; i.e., most of the analyses concern full-time workers from the IRS sample compared to full-time workers from the Census sample since inferences about most determinants of wage and salary income may be made with more confidence for this group. All veterans in the Census sample were selected as the basic comparison group to ensure that both comparison groups had at one time passed similar military mental and physical screening tests. Appendix VII contains the results of our analysis concerning the effects of using veteran status as a stratifying variable. We chose to control for age and education in our overall officer and enlisted IRS sample comparisons so that officers and enlisted personnel were compared to the same group of veterans working full time, with age and education controlled for in the comparison itself. The occupation comparisons are described in Chapter IV. Finally, we chose to analyze male officers and enlisted personnel only, since sample sizes for females were insufficient to draw significant conclusions.

Once comparable groups of former military personnel and Census veterans were defined, we constructed an ordinary least squares model of post-service earnings differentials as a function of career length, time since separation or retirement, and a number of personal and military attributes. The models help us to analyze the factors affecting the magnitude of the differentials and to assess the impact of relevant variables, such as career length, time since separation, and occupation, on post-service earnings.

Given this brief outline of our approach, we now turn to a discussion of the data base used in our analysis.

IRS/SSA Data Bases

The data bases used in this report were developed for the Fifth ORMC through the cooperative efforts of

the Defense Manpower Data Center, the Internal Revenue Service, and the Social Security Administration. The data for this report were drawn from four sources:

1. Internal Revenue Service (IRS) data files on individual's wage and salary earnings for 1979, 1980 and 1981;
2. Social Security Administration (SSA) employer reported earnings up to the Social Security salary limit for 1973 through 1981:

Social Security Salary Limits

1973	\$10,800	1977	\$16,500
1974	13,200	1978	17,700
1975	14,100	1979	22,900
1976	15,300	1980	25,900
		1981	29,700

3. Defense Manpower Data Center (DMDC) military personnel separation files for 1972 through 1980;
4. 1980 Census Public Use Microdata Sample (PUMS).

Data from the first three sources were combined to form data sets for officers and enlisted personnel. Data drawn from the 1980 Census of Population formed the civilian comparison group.

Construction of the Data Bases. The data files for the retired or separated military personnel were formed by 1) stratifying DMDC files into cells to safeguard individuals' privacy, 2) selecting a sample of retirees and separatees from these DMDC personnel files, and 3) appending wage earnings from the IRS (as reported on W-2 Forms) or from the Social Security Administration. Of the three steps, the first merits further discussion because the construction of cells imposes important limitations on the analysis. (For a complete discussion of the sampling procedure, see Appendix I.)

The stratification procedure sorted the data base by a number of individual attributes. Enlisted personnel and officers were arranged in cells according to

their classification based on the following seven variables: 1) service (Army, Navy, Marines, Air Force) 2) sex and race (black male, non-black male), 3) pay grade (O-4 or E-6 and below, O-5 or E-7 and above) 4) education (high school graduate and above, less than high school school), 5) year of separation (1972 through 1980), 6) length of service (16 categories, 2.5 years through 30 or more years; See Appendix II) and 7) occupation (6 categories, described in Chapter IV). Each combination of variables (e.g. black, college-educated, Navy aviator officer of five years service, pay grade O-5 or above, separated in 1974) defines a cell. This sorting resulted in a total of 41,472 cells for officers and the same number for enlisted personnel; however of these cells, however, 30,299 officer and 26,827 enlisted cells were empty. The sample drawn included all individuals from cells containing at least 3 and no more than 25 people and randomly selected 25 individuals from cells containing more than 25 people. Table 1 shows the breakdown of the sample sent to the IRS and SSA by the size of cell for officers and enlisted personnel.

Table 1

DMDC Sample Sent to IRS/SSA by Cell Size

<u>Officers</u>			
<u>Cell Population</u>	<u>Number of Cells</u>	<u>Total Sample</u>	<u>Population</u>
1-2	4,053	0	5,278
3-25	5,128	47,826	47,826
26 +	1,992	49,800	202,180
<u>Enlisted Personnel</u>			
<u>Cell Population</u>	<u>Number of Cells</u>	<u>Total Sample</u>	<u>Population</u>
1-2	4,264	0	5,680
3-25	5,699	53,033	53,033
26 +	4,682	117,050	2,261,733

This sampling procedure was designed to capture the effects of variables over small as well as large cells in order to examine the effects of policy relevant

variables over the full range of variable values. As a result, the procedure censused (sampled 100% from) the smaller cells, and randomly selected from the larger cells, with 25 observations chosen for each large cell, regardless of cell size.

Each record in the IRS file contains the former military member's wage earnings for 1979-1981 as filed with the IRS, branch of Service, race and sex, career length, education and pay grade, year of separation or retirement, and military occupation. The SSA file contains the individual's wage earnings for 1973-1981 as reported to the Social Security Administration, plus the other variables. In addition, each record carries a number of variables that describe the cell to which the person belongs rather than the individual. These cell variables include the percent distributions of the cell population for the Armed Forces Qualifying Test (AFQT) categories and for pay grade, mean AFQT score, mean age and education at separation, the longest, shortest and median time in grade, and the sampling fraction for the cell.

For a number of variables crucial to the analysis, the cell structure imposed two important limitations. First, privacy restrictions necessitated the use of cells in the data collection process. In order to keep the number of cells down to a manageable number, certain variables describing individual's characteristics were constrained to have a smaller number of possible values than would be desirable for the data base. The length of service variable also grouped several years together in the same cell. Second, the variables that contain averages over the entire cell introduce "measurement with error" when used to reflect individual observations. The use of group averages reduces the efficiency of the estimates and therefore tends to increase the variance of parameter estimates, as well as creating a downward bias on these estimates. This problem is significant, because to obtain a more detailed breakdown (more than 2 categories) of educational levels, the cell average for years of education was used to create dummy education variables in all regression models; age was measured as a cell average as well.

The IRS data base used for the analysis in this report includes 80,308 officers and 151,892 enlisted

Table 2

IRS DATA BASE SUMMARY
(Number of Individuals)

	OFFICERS (80,308)		ENLISTED (151,892)	
	Retirees	Separatees	Retirees	Separatees
Male	37,282 (46%)*	37,933 (47%)	60,826 (40%)†	81,196 (53%)
Female	423 (.5%)	4,670 (6%)	844 (.6%)	9,026 (6%)
Total	37,705 (47%)	42,603 (53%)	61,670 (41%)	90,222 (59%)
less: Females	423	4,670	844	9,026
less Males with:				
- zero earnings	5,159 (6.4%)	3,378 (4.2%)	7,840 (5.2%)	8,188 (5.4%)
- between \$0 and \$6000 earnings	3,237 (4%)	2,424 (3%)	4,964 (3.3%)	10,167 (6.7%)

total number of individuals in data base used: 28,886 (36%) 32,131 (40%) 48,022(31.6%) 62,841 (41.4%)

* The figures in parentheses reflect the percent of all officers.

† The figures in parentheses reflect the percent of all enlisted.

personnel as shown in Table 2. Of the officers, 53 percent of the sample are separatees, 47 percent are retirees. For the enlisted personnel, a larger percent of the sample were separatees. Females account for 6.3 percent of officers and 6.5 percent of enlisted personnel.

As discussed earlier, the basic group whose earnings we would like to compare is comprised of full-time workers. While it would have been interesting to construct two comparison groups, one of all former military personnel and one of all full-time workers to compare to census counterparts, limitations of the IRS data base prevented such comparisons.^{1/} A comparison of Tables 1 and 2 shows that of the 97,626 officers included in the sample, the IRS had no W-2 earnings information for 18 percent. The IRS could not locate W-2 earnings information for 11 percent of the enlisted personnel. Furthermore, the IRS was unable to describe the work status of the individuals with missing data. Because the distribution of missing data could bias a comparison of all retirees or separatees to census counterparts, we chose to focus on full-time workers where we could define an appropriate comparison group.

Work status is not included in the IRS/SSA data base. To develop full-time earnings for military retirees, an adjustment ratio (constant across age) was developed from Census data by dividing average earnings of full-time workers by the average of all workers. For separatees, the ratio of average full-time earnings to the average earnings of all workers was estimated as a function of age and age squared. The resulting parameter estimates were used to calculate the appropriate full-time adjustment ratio given the age of individuals in the IRS/SSA data base. The ratio was then multiplied by an individual's earnings to obtain estimated full-time earnings. To eliminate retirees and separatees working for less than a full year, those earning less than \$6,000 in 1982 dollars were not included in

^{1/} The IRS data base includes only wage and salary earnings. Self-employed persons would thus show zero wage and salary earnings, as would persons not employed at all.

Table 3

IRS DATA BASE SUMMARY: SERVICES
(number of individuals, male and female)

	<u>Army</u>	<u>Navy</u>	<u>Marines</u>	<u>Air Force</u>	<u>Total</u>
<u>Separates</u>					
Officers	16,013	10,070	4,091	12,429	42,603
Enlisted	29,341	24,906	16,957	19,018	90,222
Total	45,354	34,976	21,048	31,447	132,825
<u>Retirees</u>					
Officers	12,546	10,486	3,756	10,917	37,705
Enlisted	17,619	16,028	6,498	21,525	61,670
Total	30,165	26,514	10,254	32,442	99,375

Table 4

IRS DATA BASE SUMMARY: MILITARY OCCUPATIONS
(number of individuals, male and female)

	Combat Arms	Aviators [*]	Scientists & Engineers [†]	Medical & Dental		Total
				Administration	Other	
<u>Separatees</u>						
Officers	6,830	6,027	4,628	8,722	8,692	42,603
Enlisted	14,421	18,711 ^a	19,036 [†]	22,051	9,871	90,222
Total	21,251	24,738	23,664	30,773	18,563	132,825
<u>Retirees</u>						
Officers	6,421	5,901	5,561	11,034	2,375	37,705
Enlisted	9,358	12,716 ^a	14,505 [†]	18,012	6,256	61,670
Total	15,779	18,617	20,066	29,046	8,631	99,375

^aFor enlisted, jobs in electronics, communication, and intelligence comprise the group.

[†]For enlisted, jobs as electricians, mechanics or craftsmen comprise the group.

the sample. The \$6,000 floor reflects the full year earnings in 1982 dollars of a worker earning the minimum wage in 1981. As a result of this earnings floor, the analysis group included 76 percent of the officers in the IRS data base and 73 percent of the enlisted personnel. These adjustments do not enable us to identify only those separatees and retirees working full time, but these adjustments provide a better base for comparing the IRS data to the Census data than do the unadjusted IRS data.^{2/}

The IRS data base contains a broad sample of separatees and retirees from all four Services, as shown in Table 3. A substantial number of retirees and separatees from each of the six occupational groups are included in the IRS data base, as shown in Table 4. In sum, the IRS/SSA data base contains a large sample of important subgroups within the population of retired or separated officers and enlisted personnel.

1980 Census Data Base

The civilian comparison group was drawn from the 1980 Public Use Microdata Sample (PUMS). The PUMS files are based on detailed questionnaires from five percent of the U.S. population as a part of the 1980 Census. For this analysis, a subsample from the PUMS file was constructed. The PUMS subsample was drawn from 17 large and geographically diverse states.^{3/}

^{2/} Any bias from this adjustment other than shifting all IRS earnings up compared to Census earnings depends on the extent to which part-time work status is related to the other variables within our groups of separatees or retirees. Separate analyses for retirees and separatees should reduce such bias to the extent that part-time work status depends on whether the individual receives military retirement pay.

^{3/} The states were Arizona, Arkansas, California, Colorado, Florida, Illinois, Kansas, Louisiana, Maine, Michigan, Minnesota, Mississippi, Montana, Nebraska, New York, Pennsylvania, and Texas. These were the first 17 states available from the PUMS data set.

Disabled individuals were excluded (as they were from the IRS sample) from the subsample, as were individuals with ages less than 16 or greater than 80. The subsample included 4.1 million individuals. For each individual the following variables were drawn from the PUMS file: 1979 wage earnings, race, sex, age, education, occupation, and work and veteran status.

The Census sample includes a broad variety of the U.S. population, many of whom are not comparable to the military retirees and separatees in the IRS/SSA files. To avoid a comparison of a group which has passed a screening test to a group which had not, we chose as our basic civilian comparison group veterans included in the Census sample. The veterans in the Census sample have passed the same screens as those in the IRS/SSA data files and thus form an appropriate civilian comparison group. The Census veterans include all reservists, national guardsmen and others who had never been in active full-time military service, as well as veterans of World War II, the Korean and Vietnam Wars. The Census veteran group could also include some of those who retired or separated between 1972 and 1980 who are included in the IRS/SSA file, which could impart a downward bias on our results.

To match the IRS/SSA comparison group, individuals working full time and earning \$6,000 or more were selected from the Census. We defined full-time workers from the Census sample as those working at least 35 hours a week for at least 48 weeks a year. This subsample of the Census data formed our basic comparison group.

Data Sources and Previous Findings

Little systematic work has been published on the subject of military personnel separating from the Services before their twentieth year of service. Several studies have examined separatees' post-service earnings, although all but one have focused on the different question of estimating the return to military

training.^{4/} The one study, done for the Center for Naval Analysis (CNA), found that potential civilian earnings grow while an individual remains in the military. This study analyzed data for former enlisted personnel only, and aggregated these data into categories defined only for a fairly small number of characteristics, limiting the model's ability to make detailed distinctions. Ongoing studies at the Center for Human Resource Research at Ohio State University and at Mathematica, Inc. examine specific age cohorts of separatees and civilians.^{5/} These age cohort studies do not contain analyses of a broad range of separatees and their civilian counterparts.

A number of important retiree data bases have been previously analyzed.^{6/} The 1966 DoD Survey of Military Retirees was one of the earliest data bases produced. Some of its results were reported by the First QRM. This study found that military retirees earned considerably less than their civilian counterparts, even when full-time, full-year workers were compared. However, a large portion of the survey participants had left the Services within five years of the survey date, thereby weakening the survey's conclusions concerning long-term adjustment to the civilian work force.

^{4/} Matthew S. Goldberg and John T. Warner, "Earnings of Military Veterans," Center for Naval Analysis, 1983. See Eva Norrblum, An Assessment of the Available Evidence on The Returns to Military Training, Rand Corporation, R-1960-ARPA, July 1977 for a discussion of other studies.

^{5/} These studies have not yet generated published material.

^{6/} William T. Raduchel, et.al., "Post-Retirement Income and Earnings of Military Personnel Who Retired from 1970 to 1974," In Supplementary Papers of the President's Commission on Military Compensation, U.S. Government Printing Office, 1978. Patricia Munch Danzon, Civilian Earnings of Military Retirees, The Rand Corporation, R-2353-MRAL, March 1980.

Using the 1970 Census public use samples, Munch developed a data base of earnings and other information for individuals in the Census presumed to be military retirees on the basis of a number of questions concerning timing of active duty. Although the data base included a reasonable sample of military personnel retiring between 1964 and 1969, it was unable to specify in which year individuals retired and included very little information on individuals' military attributes or experience.

Another data base, developed at the request of the Senate Appropriations Committee, drew on records of the Defense Manpower Data Center and the Internal Revenue Service. The data were arrayed into 1,100 cells, with cell averages for different variables representing the data entries. The civilian comparison group was selected from the National Longitudinal Survey from 1966. Similar to the 1966 DoD Survey, most of the sample was made up of recent retirees. Using this data set, Raduchel et.al. found much larger earnings differentials when comparing all military retirees to comparably aged and educated civilians working at least 44 weeks than when comparing military retirees and civilians where both groups worked full time.

One study was able to examine the transition to the civilian work force over a longer term. This study, by Richard Cooper, was based on the 1977 DoD Retiree Survey.^{7/} The 1977 survey included a large number of individuals who had been retired for ten or more years. The 1977 survey also included a number of military attributes as well as some characteristics of the individual after leaving the military.

Cooper's earlier work found small differentials between the post-service earnings of retirees who work full time and their civilian counterparts in the long run (after at least 10 years). However, in the first five years of retirement, Cooper found that average retirees earned less than their civilian counter-

^{7/} Richard V.L. Cooper, Military Retirees' Post-Service Earnings and Employment, Rand Corporation, R-2493-MRAL, February 1981.

parts. Cooper also found that many retirees appear to voluntarily work less than their civilian peers of similar age using their retirement benefits to supplement their income. This choice lowers the average wage and salary earnings of all retirees relative to the comparison group, but does not necessarily imply lower income or a lower level of well-being.

The earlier data bases had several important shortcomings and strengths. First, none of the data bases with detailed military characteristics of individuals included separatees. Second, the data, except for the 1977 Survey of Retirees, included a preponderance of recent retirees. The 1977 DoD Survey responses were not always internally consistent, and the self-reported salary data could not be independently verified. However, the strength of the 1977 DoD Survey of Retirees was that it included a number of important variables describing personal attributes and behavioral choices, such as the amount of education received since separation and whether the retiree moved to be near a military base. In addition, the 1977 survey provided a relatively high level of detail for the personal attribute variables allowing for more complete analysis.

Comparison of Data Bases. The IRS/SSA and 1980 Census data bases have several clear advantages over the data bases used in previous work, as well as several disadvantages. This section assesses the strengths and weaknesses of the IRS/SSA data base.

The IRS/SSA data base is exceptionally strong in terms of sample and data integrity. The IRS/SSA data base includes retirees and separatees known from DMDC records. Wage and salary data were drawn from IRS and SSA records; military and personnel characteristics were taken from military personnel files. The IRS/SSA data base includes only those retired or separated between 1972 and 1980, making long-term transition effects difficult to ascertain. However, the SSA data base does contain earnings information for 1973 through 1981, making longitudinal earnings analysis possible. The IRS/SSA data base is exceptional in terms of consistency and objectivity of the data and in the ability of the researcher to draw a random sample from the relevant universe.

An important shortcoming of the IRS/SSA data is that no information on non-wage income is included on an individual's record. Moreover, the IRS sample includes only those individuals with some W-2 (wage and salary) income over the period 1979-81. Another weakness of the IRS/SSA data base is that it does not include information on current working status, current education level, or variables describing individual preferences or behavior. The overall number of cells or subgroups in the IRS/SSA data base constrains the level of detail in the personal characteristics variables as described below. Finally, the IRS/SSA data base contains accurate information about individuals' military occupations, but no information on post-service occupations.

In summary, the IRS/SSA data base contributes to the knowledge of the post-service earnings of military personnel. For the first time, post-service earnings data were collected for a systematic sample of separatenes and retirees. The IRS/SSA data are based on military personnel files and IRS and SSA files, an important advantage given the lack of consistency and uncertain objectivity of some earlier data bases. On balance, the IRS/SSA data base cannot be used to examine all the policy issues in as great detail as the 1977 survey used in Cooper's study, but we can state our findings with greater confidence in the accuracy and representativeness of the underlying data. These data will also permit follow-up analyses of post-service earnings over several years of personnel separation.

III. METHODOLOGY AND FINDINGS

Key Definitions. The analysis focuses on enlisted and officer males. Female officers and enlisted personnel were not included in the regression analyses, because females comprised too small a part of the IRS/SSA data base to provide consistent, reliable results, as shown in Table 2.

Officers and enlisted personnel are divided into two groups: separatees and retirees. Separatees include those leaving military service from 1972 - 1980 with between 4 and 19 years of service. Retirees include those leaving the military during the same period with 20 or more years of service. The Census comparison group, drawn from the 1980 Census, is comprised of veterans between the ages of 16 and 65; this range of ages was chosen to reflect the full range of the effect of age on earnings. In the remainder of this report, this group will be referred to as Census veterans.

The post-service earnings differentials are estimated from wage and salary earnings only. Retirement income, income from self-employment, income from investments, and other non-wage income are excluded. In addition, all earnings have been converted to 1982 dollars using the Employment Cost Index as reported by the Bureau of Labor Statistics.

All earnings differentials between military retirees and separatees and their Census counterparts are based on full-time, full-year workers, from the census sample and our estimate of full-time earnings for the IRS sample.

Cross-Tabulations

Before discussing the statistical model of post-service earnings, we present a brief description of cross-tabulations of the post-service earnings by different subgroups. These provide a useful overview of some overall characteristics of the IRS data base. The earnings of officers and enlisted personnel from the IRS data base are compared first to the average earnings of all Census veterans in the appropriate or working status group, and then to the average earnings for

subgroups of officer- and enlisted-like occupations in the Census sample, divided according to the occupational split described more fully in Chapter IV.

Tables 5 through 8 present cross-tabulations of average wage and salary incomes for the IRS and Census data bases. Tables 5 and 6 contrast the average earnings of all and full-time military separatees, respectively, while Tables 7 and 8 make a similar comparison for retirees.^{8/} For the purposes of these cross-tabulations, sub-samples from the Census data base were drawn to partially control for age in comparing post-service earnings of military personnel to their civilian counterparts. To match approximately the distribution of age within the separatee population, male veterans from age 25 to 45 were selected from the Census data base. Male veterans from age 40 to 60 were drawn from the Census data base for the cross-tabulations of retiree average earnings. The tables also present average wage and salary earnings for former military personnel from the IRS sample and their Census counterparts by level of education in order to control for the effects of different distributions of education levels within the two groups. Appendix II contains the distribution of the two samples into the various categories presented in Tables 5-8.

These tables enable us to make two kinds of comparisons. First, we can compare the earnings of former military personnel by education and officer/enlisted status with the earnings of all comparably aged and educated veterans in the civilian workforce. The "All" veteran earnings column is used to make this comparison. Second, we can compare the earnings of former military personnel by education and officer/enlisted status with the earnings of comparably aged and educated veterans in "officer-like" and "enlisted-like" occupations. For example, former officers with more

^{8/} The comparison of all former military personnel and civilians may be biased due to the missing IRS data described earlier. The cross tabulation does provide a rough estimate of relative levels of earnings for the IRS and Census samples.

Table 5

ALL MILITARY SEPARATEES' AVERAGE 1981 POST-SERVICE EARNINGS
(in 1982 dollars)

Sample	Length of Service			All†	Census	
	1 - 5 year careers	6 - 9 year careers	10-20 year careers		Veteran Earnings Ages 25 - 45	
					All	By Occupation*
Officers						
Less than 12 years of education	53,335	31,049	56,985	41,076	17,563	20,142
12 to 15 years of education	23,693	27,308	23,626	24,657	21,450	24,357
Greater than 15 years of education	30,350	34,307	37,019	33,325	28,959	33,034
All	30,173	33,765	34,178	32,509	22,686	25,776
Enlisted Personnel						
Less than 12 years of education	11,685	14,078	14,411	12,122	17,563	17,117
12 to 15 years of education	14,369	16,022	15,795	14,935	21,450	19,908
Greater than 15 years of education	19,256	-	-	19,256	28,959	27,518
All	13,309	15,698	15,506	14,004	22,686	21,325

† Civilian earnings reflect Census data for non-retired veteran males in the labor force.

* Civilian earnings by occupation reflect the split between officer-like and enlisted-like occupations for the Census sample of non-retired male veterans.

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Table 6

AVERAGE 1981 POST-SERVICE EARNINGS OF MILITARY SEPARATEES
WORKING FULL TIME
(in 1982 dollars)

Sample	Length of Service			All†	Census	
	1 - 5 year careers	6 - 9 year careers	10-20 year careers		All†	By Occupation*
Officers						
Less than 12 years of education	69,855	42,591	68,534	54,535	22,308	25,872
12 to 15 years of education	30,499	33,457	29,307	30,648	25,235	28,096
Greater than 15 years of education	38,829	42,664	44,696	41,600	34,394	39,953
All	38,609	41,954	41,523	40,396	26,979	30,131
Enlisted Personnel						
Less than 12 years of education	19,104	19,317	20,092	19,222	22,308	21,620
12 to 15 years of education	21,601	21,574	21,624	21,600	25,235	23,665
Greater than 15 years of education	26,613	-	-	26,613	34,394	32,450
All	20,662	21,211	21,310	20,848	27,979	25,526

† Civilian earnings reflect Census data for full-time non-retired veteran males with earnings greater than \$6,000.

* Civilian earnings by occupation reflect the split between officer-like and enlisted-like occupations for the Census sample of full-time non-retired male veterans.

Table 7

ALL MILITARY RETIREES' AVERAGE 1981 POST-SERVICE EARNINGS
(in 1982 dollars)

Sample	Length of Service			All†	Census Veteran Earnings Ages 40 - 60	
	21-25 year careers	26-30 year careers	> 30 yr careers		All†	By Occupation*
Officers						
Less than 12 years of education	24,759	20,930	14,942	23,067	19,570	20,954
12 to 15 years of education	19,971	17,631	15,905	19,039	24,405	27,754
Greater than 15 years of education	25,230	23,949	22,604	24,711	35,193	37,187
All	23,778	22,112	20,606	23,114	25,726	28,811
Enlisted Personnel						
Less than 12 years of education	14,935	13,791	13,113	14,717	19,570	19,243
12 to 15 years of education	15,237	13,998	13,470	14,912	24,405	21,949
Greater than 15 years of education	-	17,287	-	17,287	35,193	34,291
All	15,160	13,961	13,411	14,861	25,726	24,112

† Civilian earnings reflect Census data for all retired veteran males in the labor force.

* Civilian earnings by occupation reflect the split between officer-like and enlisted-like occupations for the Census sample of retired male veterans.

Table 8

**AVERAGE 1981 POST-SERVICE EARNINGS OF MILITARY RETIREES
WORKING FULL TIME
(in 1982 dollars)**

Sample	Length of Service			Veteran Earnings Ages 40 - 60	
	21-25 year careers	26-30 year careers	> 30 yr careers	All†	By Occupation*
Officers					
Less than 12 years of education	33,990	27,208	29,130	31,488	23,956
12 to 15 years of education	28,894	27,230	26,295	28,301	28,647
Greater than 15 years of education	36,752	37,631	38,082	37,042	41,225
All	34,566	34,540	34,515	34,521	30,486
Enlisted Personnel					
Less than 12 years of education	21,806	20,911	20,455	21,645	23,956
12 to 15 years of education	21,973	20,911	20,482	21,704	28,647
Greater than 15 years of education	-	23,806	-	23,806	41,225
All	21,930	20,913	20,478	21,690	30,486

† Civilian earnings reflect Census data for full-time retired male veterans with earnings greater than \$6,000.

* Civilian earnings by occupation reflect the split between officer-like and enlisted-like occupations for the Census sample of retired male veterans.

APPENDIX

than 15 years of education can be compared with veterans who have more than 15 years of education and who are in "officer-like" occupations. The "By Occupation" veteran earnings column is used to make this comparison.

The data presented in Tables 5 and 6 support two general findings with regard to separatee post-service earnings. First, officers fare better in relation to their Census veteran peers, on average, than do enlisted personnel. Table 5 shows that with the exception of those officers with less than 12 years of education, officers earned about the same as their Census peers with similar levels of education. It should be noted that there are very few officers with less than 12 years of education in the IRS sample. Enlisted personnel, in contrast, earned between 25 and 30 percent less than their comparably educated peers.

Second, the position of military separatees relative to their Census veteran peers improves when the average earnings of full-time workers are compared. Average earnings of full-time officers were 34 percent higher than the average full-time earnings of Census veterans. The gap between the average earnings of enlisted personnel and their Census peers narrowed.

The findings for retirees are similar although, overall, retirees fared worse relative to their Census peers than did separatees as shown in Tables 7 and 8. The average earnings of all retired officers were 20 percent less than those of their Census veteran peers, while the average earnings of all retired enlisted personnel were 38 percent less than their Census veteran peers. Like separatees, the relative position of retirees improves when only full-time earnings estimates are compared.

The following table focuses on the IRS sample of male retirees and separatees and begins to illustrate the effects of years since separation or retirement from military service on post-service earnings.

Table 9

1981 POST-SERVICE FULL-TIME EARNINGS BY
TIME SINCE SEPARATION
(in 1982 dollars)

	<u>Time Since Separation</u>	
	<u>0-5 years</u>	<u>6-9 years</u>
<u>Officers</u>		
Separatees	38,478	42,653
Retirees	32,755	32,157
<u>Enlisted</u>		
Separatees	19,707	22,321
Retirees	21,136	22,279

The data in Table 9 show 10 to 15 percent difference in the earnings of separatees working in the civilian economy for less than six years and those who had been separated for six to nine years. The table shows smaller differences for enlisted and officer retirees. The effect of time since separation or retirement could result from one or both of two causes. First, it could reflect a transition period during which separatees and retirees adjust to their new careers. Second, the effect could be attributed to differences between retirees or separatees who separated or retired in the early 1970's and those leaving the military in the late 1970's. The personal characteristics of those leaving the military in the late 1970's could be different from those of earlier retirees or separatees, or changed economic conditions could affect earnings prospects. The regression models discussed later in the chapter will control for other individual characteristics and help isolate the effect of time since separation.

Methodology

The approach used in this analysis to modeling the post-service earnings of military separatees and retirees follows a four-stage process. The result of the process is a model which estimates the earnings differential as a function of the military and personal attributes of military retirees and separatees. This approach allows the discussion to focus on the differences between military and civilian earnings rather than the respective salary levels.

In the first stage, civilian comparison group equations were estimated from Census data. Earnings for full-time veteran males earning more than \$6,000 from the 1980 Census were estimated as a function of age, age squared, and categorical variables for race and education. (See Appendix III.)

In the second stage, imputed civilian earnings for separatees and retirees were calculated. Imputed earnings were derived by multiplying the coefficients from the civilian comparison group equations by the appropriate attributes of individuals in the IRS data base.^{9/} The imputed earnings estimate what the military retirees or separatees with their own individual characteristics (including age) would have earned if they were like the average Census individual of the same age and race, given their education level at time of separation.

The third stage involved calculation of post-service earnings differentials. The difference between separatees' and retirees' actual earnings and the imputed earnings constitute the earnings differentials. In the fourth stage the earnings differentials were estimated as a function of separatees' and retirees' personal and military attributes.

Our four stage procedure for estimating the post-service earnings differentials is virtually equivalent to a single equation regression analysis for the combined IRS and Census data sets, where the single equation would include separate IRS categorical

^{9/} The Census veteran equation coefficients were: Earnings (in 1982 dollars) = [1.279*(-5516.103 + 1471.896 * AGE - 14.265 * AGE2 - 4023.693 * BLACK - 12284.598 * EDLT12 - 8510.971 * ED1215)]. These regression coefficients were derived using observations from the Census sample weighted by the proportion of all military retirees that resided in 1982 in the particular state of residence for the observation.

variables for the intercept and each IRS specific coefficient. ^{10/} We chose the four-stage difference estimation procedures for two principal reasons. First, findings concerning the differences between earnings of those in the IRS sample and those in the Census sample are more easily presented and interpreted in this context. Second, this procedure was computationally more tractable, since the Census sample alone contained over 4 million individuals and over 900,000 male full-time workers.

The regression equations presented below explain post-service earnings differentials for officer and enlisted retirees and separatees. The differentials are based on full-time workers earning more than \$6,000. Regressions were also estimated for each Service as well as for each occupational group. The occupation regressions appear in Chapter IV; the Service regressions can be found in Appendix V. The dependent variable in all regressions is the post-service earnings differential as defined above. The explanatory variables are: education, race, career length, pay grade, time since separation or retirement, and time spent in the last pay grade before separation or retirement.

The coefficients reported for the models estimated relate to the difference between actual and imputed (Census) earnings of separatees and retirees, not to the level of earnings. Thus, depending on sign, the coefficient alters the magnitude of the differential. For example, if the coefficient for enlisted separatees' high pay grade categorical variable (E-7 and above) is \$1,000, holding all else constant, separated

^{10/} The reason that this approach is "virtually" equivalent is that, due to multicollinearity problems, we constrained the military age coefficients to be the same as the Census age coefficients. If we had not so constrained the military age coefficients, but had rather incorporated them into our difference equation, then the two approaches would be precisely equivalent. (For a discussion of the reasons for and effect of constraining the age coefficients, see Appendix VII).

enlisted personnel earned \$1,000 more in 1981 post-service earnings relative to Census veterans than did enlistees leaving the military in lower pay grades.

These variables were chosen to include the key determinants of post-service earnings differentials that are of interest to military manpower analysts. Determining the effects of these variables on post-service earnings differentials is important not only for the explanatory power of the variables but also to develop an understanding of their potential effect on the composition and strength of the military manpower force. Education level as well as race of an individual have been found to be important determinants of earnings in past studies of individuals' earnings streams. The effect of career length on post-service earnings differentials has important implications for the structuring of basic pay and bonuses required to attain the needed mix of experience in the Armed Forces. Pay grade and time spent in the last pay grade before separation serve to control for quality differences that might affect post-service earnings among separating military personnel. Time since separation or retirement may affect post-service earnings differentials if there is a transition period during which the earnings of separatees or retirees are below their longer-run earnings stream. This catch-up effect (if any) may be due entirely to the difficulty in changing jobs from the military or may be due in part to any catch-up that occurs if separatees or retirees obtain more education (this additional education after separation is not measured in our education variable).

As noted above, age was not included in the regression model for earnings differentials, which constrains the effect of age on earnings to be the same for the IRS sample as it is for the Census sample. Initially, age and age-squared were included in the regression model, and the coefficients for both variables were found to be insignificant. This most likely is due to the multicollinearity among age, length of service, and time since separation. The sum of length of service and time since separation represents experience in the labor force for most individuals, and most individuals also enter the service at similar ages (depending on whether they enter as officers or enlisted personnel). This problem makes it difficult to sort out the effects of the three variables (age, length of service,

and time since separation) individually. Therefore we chose to eliminate age and age-squared, since these effects are captured in the Census estimates, and include length of service and time since separation in our regression of earnings differentials, since these effects are potentially important determinants of post-service earnings differentials. Thus after nine years (the longest time since leaving the service included in the data base) the post-service earnings streams by age as estimated by our model have the same shape as the estimated Census earnings streams, although they may be higher or lower.

While the specification of each variable is discussed in detail in Appendix II, the complex specification of three variables, career length, time in last grade and pay grade, merit discussion here. The career length variable for officer and enlisted retirees is defined as the number of years of service after retirement eligibility for each individual. This specification assumes that the effect of each additional year of service beyond 20 has the same effect on post-service earnings. For separatees, the specification is more complex. For separatees, the career length variable is specified as a spline function. The spline defines four variables and a control group corresponding to different lengths of service. Separatees with military careers less than five years form the control group. The four variables are separatees with careers of 1) five to eight years (LOS 5), 2) nine to twelve years (LOS 9), 3) thirteen to sixteen years (LOS 13), and 4) seventeen to nineteen years (LOS 17)^{11/} This specification allows the effects of different career lengths spline variables to be added together. Thus, the earnings of an officer leaving after an eight year career would be reduced or increased by four times the

^{11/} The cell definition variables for length of service were not fine enough to allow us to treat length of service as a continuous variable and thus to derive a more complicated functional form for this effect on earnings differentials. See Appendix II for the cell definition groups for length of service. Appendix VII contains a discussion of different specifications for the model that were tried.

LOS 5 variable. For an officer leaving after a nine year career, the differential would be altered (depending on the variable sign) by four times the LOS 5 coefficient plus one times the LOS 9 variable. This specification constrains the slopes of the LOS variables to join, thus forming a smooth curve. The assumption underlying the spline specification is that for separatees, the effect of an additional year of service may change as the number of years served accumulates. For example, it might be advantageous to leave the military after four or five years of service, but disadvantageous to leave just before retirement eligibility.

The time spent in last grade variable is intended to measure the relative promotion pattern of a particular individual. The variable is specified as the individual's actual number of years (measured as the median for the individual's cell) spent in the last pay grade less the mean time spent in the last pay grade for all officer or enlisted personnel. Those officers or enlisted personnel remaining in their last pay grade longer than the mean time may be of lesser ability than those promoted more quickly and thus may have lower post-service earnings.

The pay grade variable for retirees is a straightforward categorical variable which distinguishes between individuals retiring while in a low or high pay grade, and estimates the effect of retiring in a low pay grade on the post-service earnings differentials (O-4 and below for officers, E-6 and below for enlisted personnel). For separatees, the specification includes two pay grade variables, one for separatees with less than seventeen years of service and another for separatees with seventeen or more years of service. The two variables provide estimates of the effect on the post-service earnings differentials of separating while in a high pay grade (O-5 and above for officers, E-7 and above for enlisted personnel).

Regression Results

The remainder of this chapter discusses the regression models and their findings. This section discusses the interpretation of the statistical model and the magnitude of post-service earnings differentials.

The tables below include parameter estimates (asterisks indicate statistical significance at the .05 significance level) standard errors (in parentheses), and means for each variable (or percent of the sample for categorical variables). The models explain between 2 and 16 percent of the variance in mean earnings differentials^{12/} The coefficients on almost all the variables are strongly statistically significant at the .05 significance level.

Officers

Separatees. The model of officer separatee earnings shows that all else equal, a white, college educated officer who worked as an O-4 or below and who had been separated from the military for between seven and ten years after four years of service earned about \$5000 more than his Census veteran counterpart in 1981 (see Table 10). Figure 1 shows the effect of additional years of service on post-service earnings for officer separatees holding all else equal. Starting from the \$5,000 positive differential for officers who have been out of the service 7 years or more, officers serving additional years after four added about \$1,100 to the \$5,000 differential for each additional year up to eight years of service. Thus officers with eight year careers earned \$9300 more than their Census veteran peers (i.e., $5011 + 4 \times 1,065 = 9,271$). After the eighth year officer separatees lost about \$1300 for additional years of service through twelve. Between thirteen and sixteen years of service separatees lost \$2400 for each additional year served. Separatees leaving after fourteen years of service earned less than their Census veteran counterparts in 1981. Those separating after 17 to 20 years of service did not fall

^{12/} Several specifications of the model were tried, some using logarithms and some looking at earnings rather than earnings differentials (see Appendix VII). We found that the model's ability to explain variations in earnings did not improve significantly with more complex specifications and have presented the results for the linear specification of the earnings differential because these results are the clearest to interpret.

Table 10

OFFICER MALE SEPARATEES 1981 POST-SERVICE EARNINGS
RELATIVE TO CENSUS COUNTERPARTS^a

Independent Variables

Constant	• 5011 (322)
Length of Service:	
LOS 5	• 1065 (130) 36%
LOS 9	• -1264 (165) 21%
LOS 13	• -2383 (337) 5%
LOS 17	296 (1034) 1%
Education:	
Less than 12 years	• 30869 (2848) 0.2%
12 to 15 years	• 1978 (514) 10%
Time Since Separation:	
0 - 1 years	• -8762 (526) 9%
2 - 3 years	• -4299 (376) 23%
4 - 6 years	• -2666 (332) 35%
Years in Last Grade Less Mean Time in Last Grade	• -635 (106) 0
Race: Black	442 (565) 6%
Pay Grade 1: 0-5 and Above for LOS less than 17	• 48747 (712) 4%
Pay Grade 2: 0-5 and Above for LOS greater than or equal to 17	20610 (12333) 0.01%
R ²	.1635
N	32131
Dependent Variable Mean	5655
Mean Census Earnings	29088

a. Regression model with the dependent variable calculated as the difference between separatees' actual earnings (adjusted to 1982 dollars with the ECI) and estimated earnings. Estimated earnings are based on regression coefficients from Census data for full-time, male veterans with earnings greater than \$6,000.

FIGURE 1
EFFECT OF LOS ON OFFICER SEPARATEE POST-SERVICE EARNINGS DIFFERENTIALS
 (FOR TIME SINCE SEPARATION GREATER THAN SIX YEARS)

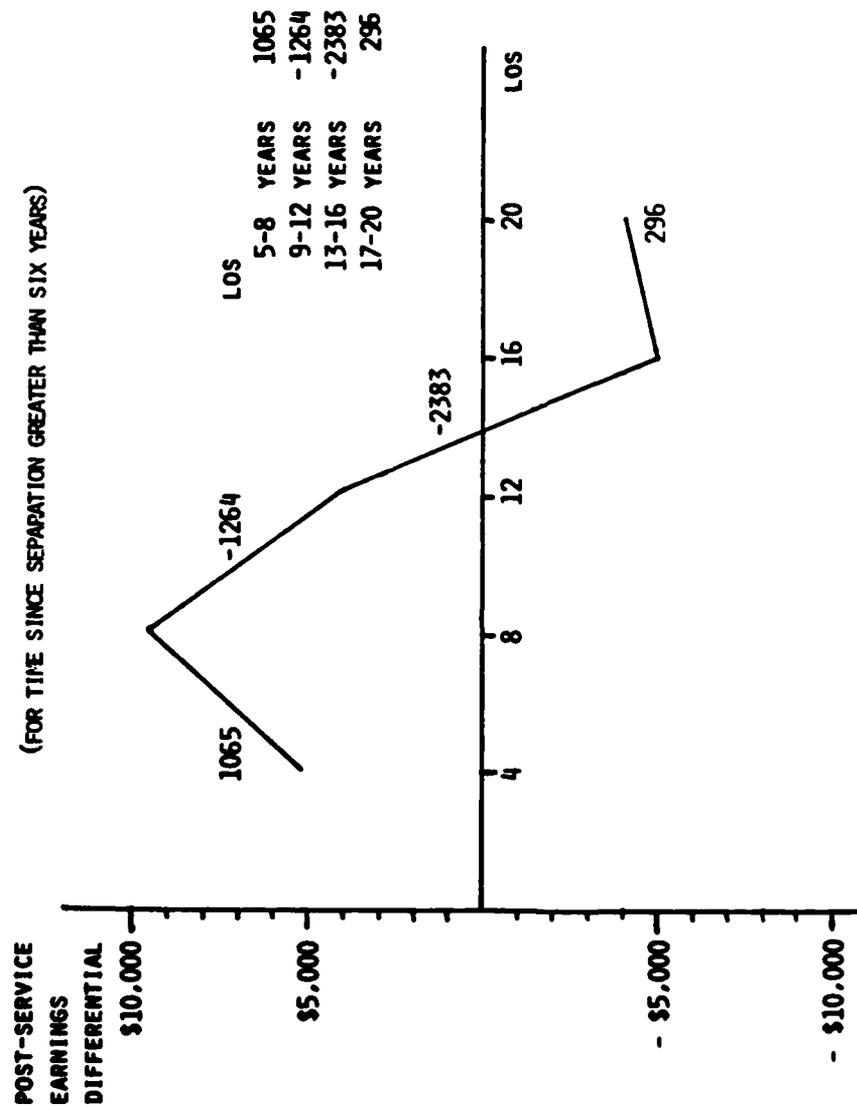


FIGURE 2
 EFFECT OF TIME SINCE SEPARATION ON OFFICER SEPARATEE POST-SERVICE EARNINGS DIFFERENTIALS
 (INDEPENDENT OF OTHER VARIABLES)

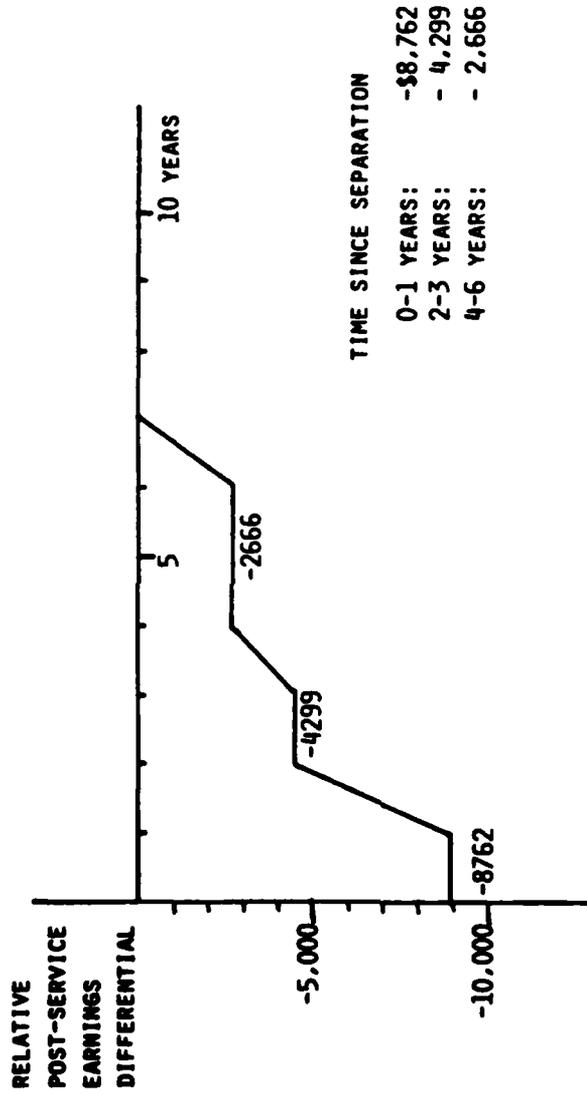
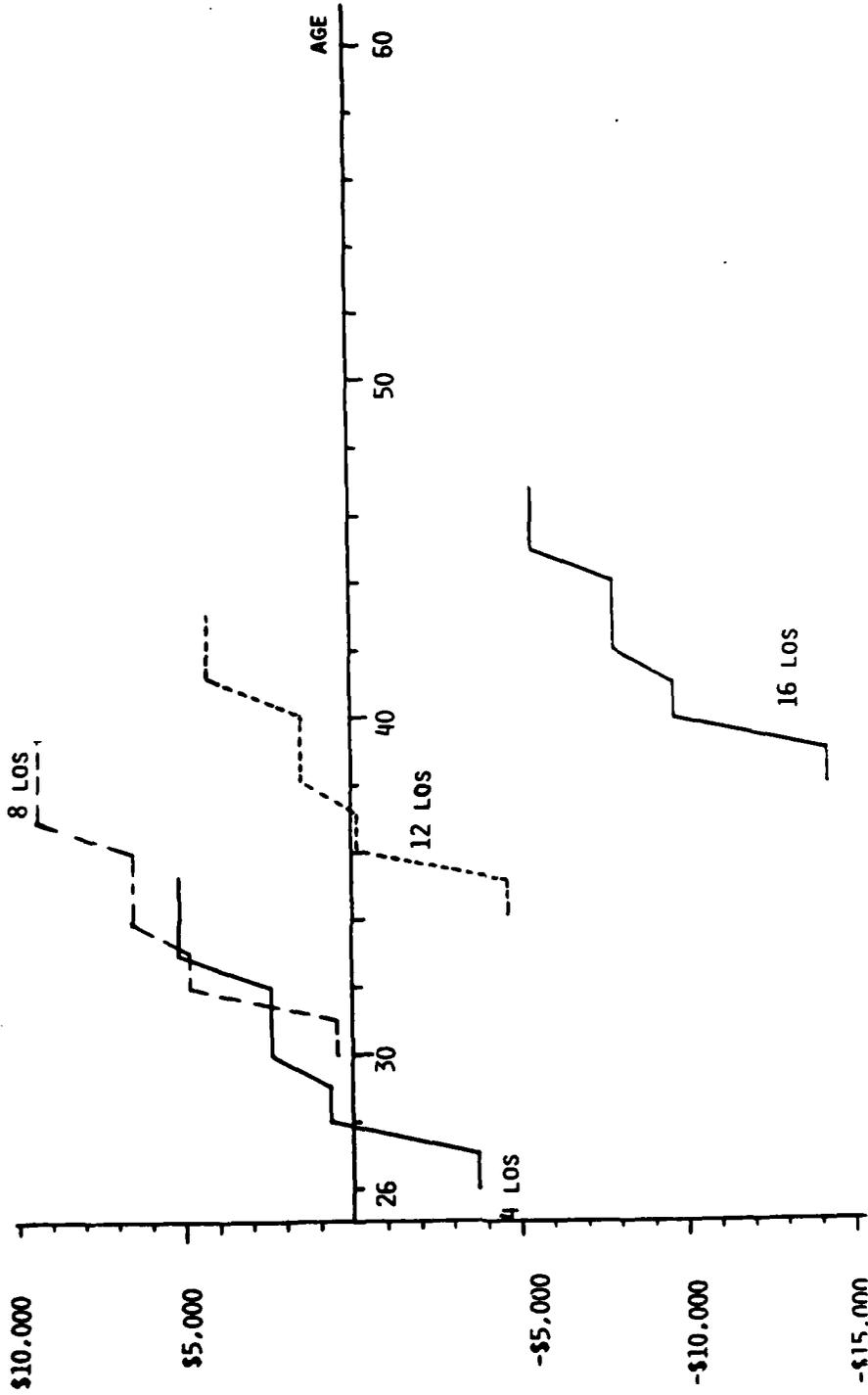


FIGURE 3
 POST - SERVICE EARNINGS DIFFERENTIALS
 OFFICER SEPARATEES



further behind their Census veteran counterparts. Holding all else constant, separatees' earnings, relative to the census veteran comparison group, peaked for those leaving with eight years of service; those leaving after longer careers fared increasingly poorly.

A strong transition effect for officer separatees is evident as shown in Figure 2. The shorter the time since separation, the less officer separatees earned relative to the Census veteran comparison group. Holding all else equal, the earnings differential for officers separated for one year or less was \$8,800 below the differential for those separated for seven years or more. However for separatees who had been working in the civilian economy for progressively longer periods, the negative differential narrowed. Figure 2 shows that, looked at in isolation, the effect of time since separation is zero after seven years. This result stems from the limitations of the data base. The largest value for time since separation in our IRS sample was nine years.

Figure 3 combines the effects of time since separation and length of service. The figure projects the earning streams of officers beginning their careers at age 22 and leaving after careers of four, eight, twelve and sixteen years. Officers leaving after eight years of service fared better than other officer separatees. In 1981, those separating after eight years of service began earning as much as their Census veteran peers in the first year of separation; after the first year separatees fared better than Census veterans. Officers with eight years of service who had been separated between seven and nine years earned roughly \$9,300 more than their veteran peers in 1981. Officers separating after sixteen years of service earned substantially less than Census veterans. Even separatees with sixteen years of service who had been in the civilian workforce for seven years were not earning as much as their Census veteran peers, although the differential narrowed considerably over the period.

Figure 3 shows that for some officer separatees the transition to civilian employment is relatively smooth -- officers with eight years of military experience never earned substantially less than the census veteran comparison group, on average. However, for officers leaving after 16 years the transition is more diffi-

cult. These separatees, even with seven years experience in the civilian economy, continued to earn less than their Census veteran counterparts.

The other variables included in the regression model control for military attributes and personal characteristics. The two education categorical variables show that separated officers with less than a college degree did better relative to Census veterans without college degrees than did college educated officers compared to their peers. Officers with less than a high school diploma (who served 4 years and have been separated at least 7 years) earned \$35,880 (5011 + 30869) more than their Census veteran peers, although only at most 0.2 percent of officers in the sample fall in this category. Officer separatees (with four years of service and at least seven years of civilian experience) with 12 to 15 years of education earned about \$7,000 more than their Census veteran peers, all else equal.

The variable time-in-last-grade less mean-time-in-last-grade proved to have a small though statistically significant effect on earnings differentials. For each year an officer spent in his last pay grade over the mean, the post-service earnings differential was reduced by \$635 relative to his Census veteran counterparts.

The differential between black officer separatees and their Census veteran peers was not significantly greater than that between white officer separatees and their peers. Finally, the two pay grade variables show that, as expected, officers separating in higher pay grades fared better than those in lower pay grades, other things equal. The size of the effect is substantial, especially for those serving 16 years or less. The almost \$49,000 differential is due at least partly to the small number of individuals achieving the rank of O-5 or above after less than 16 years of service and to the fact that most of these individuals in the sample are physicians or dentists. (See Chapter IV).

Retirees. Officer retirees are the second part of the stream of individuals leaving military careers. Retirees face many of the same career decisions as separatees, with the additional consideration of retirement benefits. Thus, the specifications of the regres-

sion models for retirees and separatees are very similar. Regression results for officer retirees are presented in Table 11.

The regression constant can be interpreted as the post-service earnings differential for a college educated, white, retired officer who spent the mean time in his last pay grade, retired while in grade O-5 or above, retired after a 20 year career, and has been retired for seven or more years. The constant shows that these retirees earned about \$1900 less, not including military retirement pay, than their Census veteran peers.

The effect of different career lengths is much weaker for retirees than for separatees. Other things equal, each additional year of service after retirement eligibility reduces retiree earnings by \$262 relative to their Census veteran counterparts.

Unlike Cooper's earlier study, the regression results for the time-since-retirement variable show a very weak transition effect for officer retirees. None of the time since retirement variables is significant, indicating that most retirees earn less than their Census veteran counterparts no matter how long they have been retired. However, this result is based on regression analysis of cross-sectional data. Our longitudinal analysis in Chapter VI indicates that there is a "cohort" effect that depends on the year of separation, and that within any cohort there is a noticeable transition effect for officer retirees as well as separatees.

Unlike black officer separatees, retired black officers earn significantly more than their Census veteran peers relative to the comparison group (non-black) differential. Blacks who remain in the military until retirement may represent a self-selected subgroup of the black population. In addition, a successful military career may serve as a form of certification for minority personnel who otherwise might have more difficulty securing attractive employment.^{13/}

^{13/} Cooper, Op. Cit., p.24.

Table 11

**OFFICER MALE RETIREES 1981 POST-SERVICE EARNINGS
RELATIVE TO CENSUS COUNTERPARTS^a**

Independent Variables

Constant	• -1894 (290)
Length of Service After Retirement Eligibility	• -262 (41) 3.1 years
Education:	
Less than 12 years	• 13731 (2100) 0.3%
12 to 15 years	• 7990 (447) 28%
Time Since Separation:	
0 - 1 years	-117 (432) 11%
2 - 3 years	289 (335) 25%
4 - 6 years	268 (309) 34%
Years in Last Grade Less Mean Time in Last Grade	-45 (72) 0
Race: Black	• 3773 (669) 3%
Pay Grade: O-4 and Below	• -7861 (374) 40%
R ²	.0223
N	26886
Dependent Variable Mean	-3242
Mean Census Earnings	29088

a. Regression model with the dependent variable calculated as the difference between retirees' actual earnings (adjusted to 1982 dollars with the ECI), and estimated earnings. Estimated earnings are based on regression coefficients from Census data for full-time, male veterans with earnings greater than \$6,000.

The signs and magnitudes of the remaining variables are consistent with the officer separatee regression results. Retired officers with less than a college education fare substantially better in the civilian work force than do their Census counterparts. Retired officers in pay grades O-4 and below earned about \$9755 (7861 + 1894) less than their peers after at least seven years since leaving, all else equal. Finally, the time in last grade variable is statistically insignificant, consistent with the small magnitude of the coefficient for officer separatees.

Enlisted Personnel

Separatees Table 12 presents regression results for enlisted separatees. Figures 4 through 6 depict the effects of career length and time since separation on post-service earnings differentials for enlisted separatees. The model yields findings similar to those for officer separatees. The constant term indicates that the "typical" white, high school graduate enlisted separatee who served four years and has been in the civilian workforce for seven years or more, earned about \$1600 more than his Census veteran counterparts.

For enlisted personnel the results show that BMC alone provides little financial incentive to remain in military service beyond the fourth year, as indicated by the career length variable coefficients. In 1981, enlisted personnel separating after four years of service lost ground relative to their Census veteran peers with additional years of service. All else equal, enlisted personnel seven years out who left the military after six years of service earned roughly the same amount as their Census peers (\$1600 constant - 2 (868)).

The transition effect for enlisted personnel differs from the effect for officers. Officer separatees went through a seven year catch-up period during which earnings steadily rose. The cross-sectional regression results for enlisted separatees, however, as with officer retirees, appear to be biased by the same type of "cohort" effect, since our longitudinal analysis in Chapter VI shows the existence of a transition effect for enlisted separatees as well as officer separatees.

Table 12

ENLISTED MALE SEPARATEES 1981 POST-SERVICE EARNINGS
RELATIVE TO CENSUS COUNTERPARTS^a

Independent Variables

Constant	• 1607 (109)
Length of Service:	
LOS 5	• -868 (37) 31%
LOS 9	• -957 (48) 21%
LOS 13	• -1052 (75) 9%
LOS 17	• -818 (266) 1%
Education:	
Less than 12 years	• 2727 (87) 32%
Greater than 15 years	• -13564 (1647) 0.1%
Time Since Separation:	
0 - 1 years	-127 (139) 11%
2 - 3 years	• 998 (106) 23%
4 - 6 years	• 448 (96) 33%
Years in Last Grade Less Mean Time in Last Grade	• 111 (41) 0
Race: Black	• 3165 (86) 34%
Pay Grade 1: E-7 and Above for LOS less than 17	• 4230 (214) 5%
Pay Grade 2: E-7 and Above for LOS greater than or equal to 17	• 5291 (737) 0.5%
R ²	.1385
N	62841
Dependent Variable Mean	1259
Mean Census Earnings	29088

a. Regression model with the dependent variable calculated as the difference between separatees' actual earnings (adjusted to 1982 dollars with the ECI) and estimated earnings. Estimated earnings are based on regression coefficients from Census data for full-time, male veterans with earnings greater than \$6,000.

FIGURE 4
EFFECT OF LOS ON ENLISTED SEPARATEE EARNINGS DIFFERENTIALS
(FOR TIME SINCE SEPARATION GREATER THAN SIX YEARS)

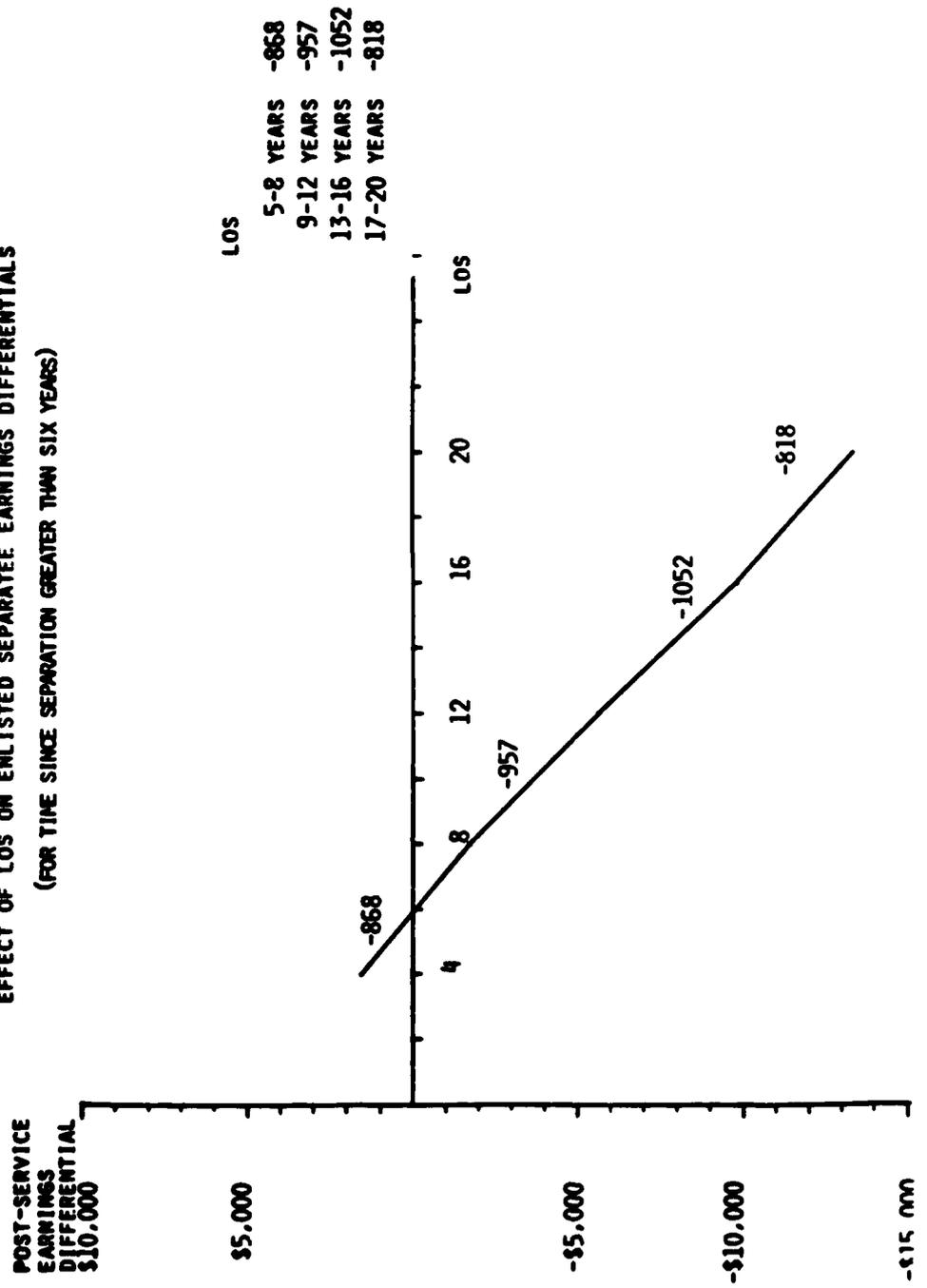
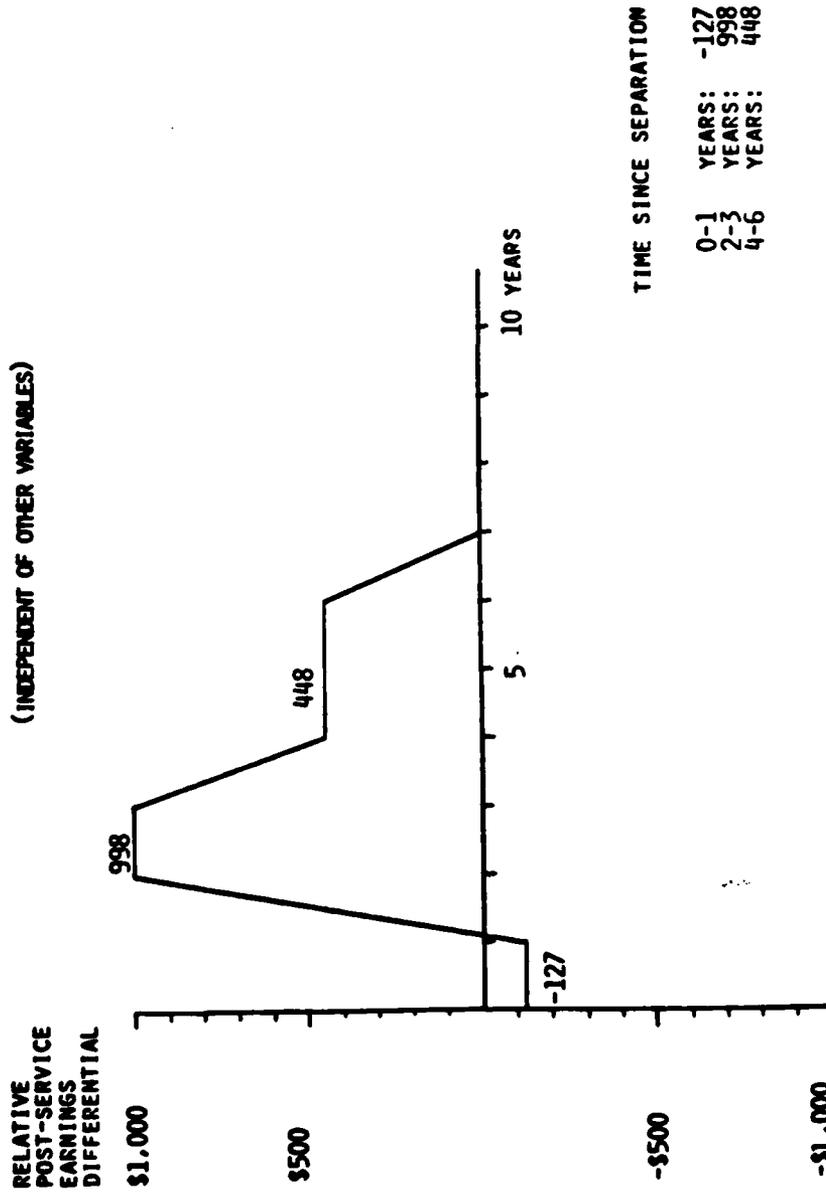


FIGURE 5

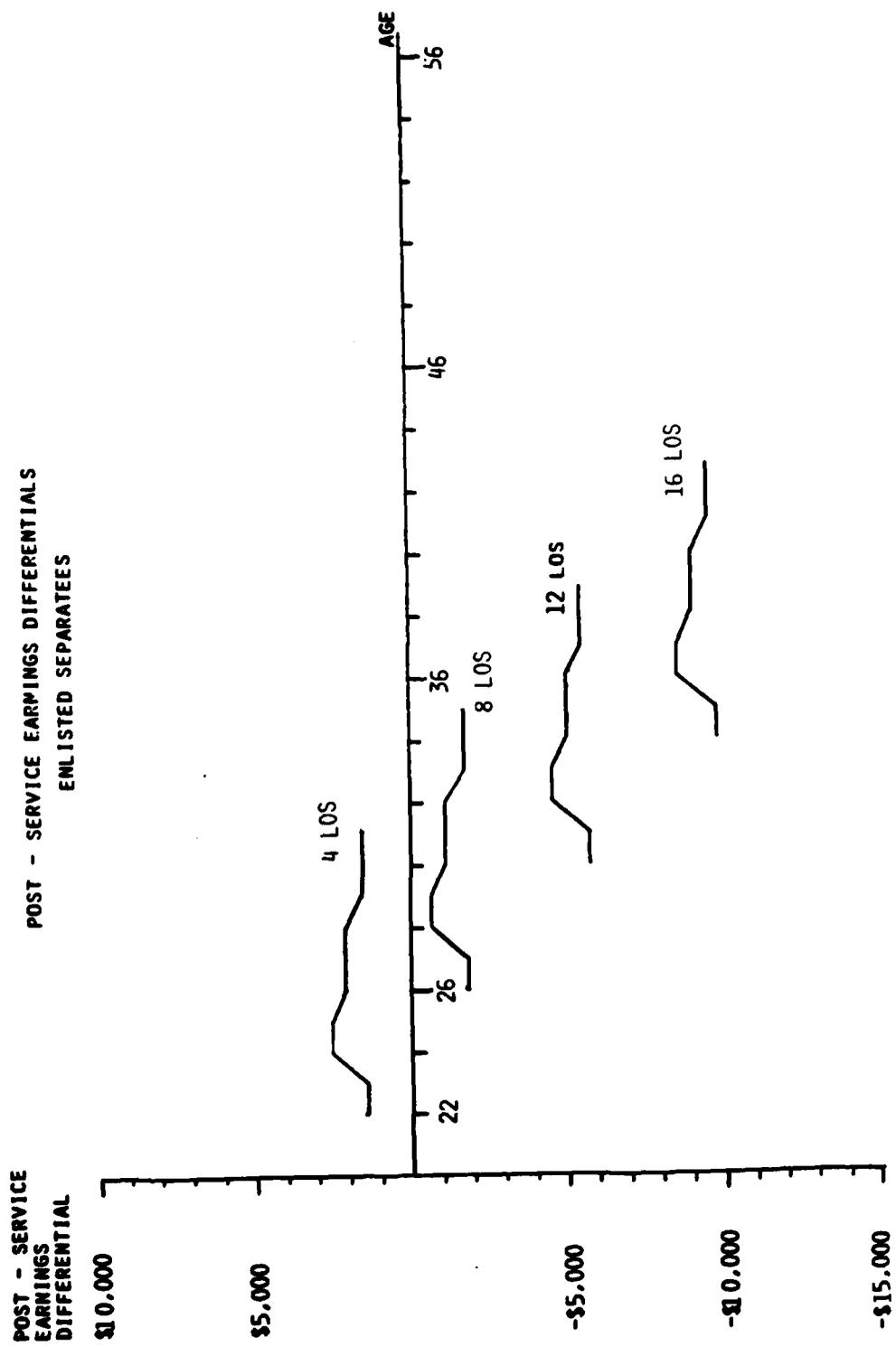
EFFECT OF TIME SINCE SEPARATION ON ENLISTED SEPARATEE EARNINGS DIFFERENTIAL

(INDEPENDENT OF OTHER VARIABLES)



TIME SINCE SEPARATION
0-1 YEARS: -127
2-3 YEARS: 998
4-6 YEARS: 448

FIGURE 6
 POST - SERVICE EARNINGS DIFFERENTIALS
 ENLISTED SEPARATEES



APPENDIX Q

The education variables show that enlisted personnel with less than a high school diploma fared better than their Census veteran peers without a high school diploma while enlisted personnel with greater than 15 years of education fared worse, relative to their Census peers. The effect of the time in last grade variable is again very small, but is positive and statistically significant. Black separatees fared better than other veteran blacks in the workforce. Like officer separatees, enlisted personnel separating in higher pay grades tended to fare better relative to their Census veteran peers than did the lower pay grade group, all else equal.

Retirees Regression results for enlisted retirees are found in Table 13. The "typical" white, high school graduate retiree who retired after a 20 year career and was in the civilian workforce for seven years or more earned approximately \$6,300 less than the Census veteran comparison group in 1981.

The effect of different career lengths on post-service earnings is weak, similar to officer retirees. For each year of service past 20, retirees lost \$350 relative to the Census veteran comparison group. The enlisted retirees appear to go through a transition period. In the first year after retirement, enlisted personnel earned almost \$9300 less than those who have been separated for seven years. However by the second and third years the gap narrowed to \$7,000 and by the fourth year after retirement the gap closed to \$6,400 all else equal. The other variables, education, time in last grade, black and pay grade, all have the expected signs and are of similar magnitude to enlisted separatees.

Table 13

ENLISTED MALE RETIREES 1981 POST-SERVICE EARNINGS
RELATIVE TO CENSUS COUNTERPARTS^aIndependent Variables

Constant	• -6303 (117)
Length of Service After Retirement Eligibility	• -346 (18) 2.6 years
Education:	
Less than 12 years	• 464 ⁺ (110) 24%
Greater than 15 years	-620 ⁺ (496 ⁺) 0.0%
Time Since Separation:	
0 - 1 years	• -2972 (170) 9%
2 - 3 years	• -676 (127) 20%
4 - 6 years	-130 (108) 34%
Years in Last Grade Less Mean Time in Last Grade	• -90 (29) 0
Race: Black	• 5636 (100) 31%
Pay Grade: E-6 and Below	• -2305 (117) 33%
R ²	.1093
N	48022
Dependent Variable Mean	-5517
Mean Census Earnings	29088

a. Regression model with the dependent variable calculated as the difference between retirees' actual earnings (adjusted to 1982 dollars with the ECI), and estimated earnings. Estimated earnings are based on regression coefficients from Census data for full-time, male veterans with earnings greater than \$6,000.

IV. OCCUPATION RESULTS

One of the important advantages of the the IRS/SSA data base is that it is large enough to examine separately subgroups drawn from the full data base. This chapter analyzes the post-service earnings differentials of each occupational subgroup within the IRS data base. The analysis of occupation groups leads to a fuller understanding of post-service earnings by isolating particular occupational groups that may fare substantially better or worse than their Census veteran peers.

The tables presented below compare three groups. The first group is comprised of former officers and enlisted personnel sorted into twelve broad occupational subgroups according to the individual's DoD primary occupation code. The second two groups are drawn from the Census and are compared to the occupational subgroups of former military personnel from the IRS database. The first Census group is the same group used in the regressions discussed earlier; all male veterans working full time and earning more than \$6,000. The second Census group is broken into occupational subgroups matching the occupational categories for former military personnel.

The matching of military and civilian occupations was based on the DoD Occupational Conversion Manual and a preliminary draft of the Booz · Allen & Hamilton, Inc. report "Military Crosscode Project" for the Office of the Assistant Secretary of Defense. The military occupation codes available in the IRS data sort officers and enlisted personnel into six occupational categories based on individuals' primary DoD occupation code 14. For officers, the categories are 1) combat

14/ For Army officers the DoD primary occupational code is not always representative of the occupation in which the officer served his career. An officer can be assigned an infantry primary code, but serve in an unrelated occupation. Overall, a larger proportion of Army officers probably is classified in combat arms than is reflective of actual Military occupation.

arms, 2) aviation, 3) science and engineering, 4) administration, 5) medical and dental and 6) other. For enlisted personnel the categories are 1) combat arms, 2) electronics, communications and intelligence, 3) electricians, mechanics and craftsmen, 4) administration, 5) medical and dental, and 6) other. The "other" category combines all those jobs which could not be classified into the first five occupations. Census job classifications were then matched, where possible, to a set of 10 enlisted and 25 officer occupation categories. These 35 categories were then combined to the 6 officer and 6 enlisted categories used in the IRS data set. No Census occupations were classified as combat arms. Census occupations similar to electricians, mechanics, and craftsmen were classified in the enlisted "other" category. This crosswalk ensures that the earnings differentials compare military occupations with similar civilian occupations, but cannot clearly distinguish between individual officer and enlisted personnel in the Census. For example, some occupations classified in the scientist and engineer category in the Census (an officer group of jobs) may in fact be filled by an enlisted separatee. There is no civilian occupation on the military personnel files so that tracing an individual from military to civilian occupation is not possible. However, most of the military occupations included in the comparison groups have close civilian counterparts.

The tables in this chapter present two sets of regression models for each occupation for which separate Census groups were identified. The first model contrasts the earnings of military retirees and separatees to the earnings of all male veterans drawn from the Census who are working full time and earning more than \$6,000. This model is presented for all 12 military occupation groups from the IRS data.

The second model matches military retiree and separatee occupational groups to male veterans working full time and earning more than \$6,000 in the matching Census occupations. The second comparison does not necessarily contrast civilian aviators to retirees and separatees who are aviators in their post-service careers, but rather compares civilian aviators to those individuals who were aviators while in the military, no matter what their post-service occupations have been.

As a result the reported occupational earning differentials are due to at least two factors. First, the earnings of civilian and former military aviators (working in aviation) may differ. Second, some portion of the former military aviators may not have found aviation jobs in the civilian economy and may be working in other, possibly lower or higher paying, occupations. Without additional information both about the actual occupation at the time of reported earnings and about voluntary/involuntary occupation switches, it is difficult to draw specific conclusions about detailed occupational comparisons.

Findings

Occupational regressions were estimated for officer retirees and separatees and enlisted retirees and separatees. The regression models include the same variables and can be interpreted in the same manner as the regressions discussed in Chapter III. Therefore, discussion of the occupation regression results focuses on the overall findings from the comparisons rather than on the details of each regression model. In particular, the magnitude of the earnings differential and the impact of length of service and time since separation are discussed.

Officers

Separatees. Non-black male separatee aviators with a college education and who left military service before their fifth year of service fared better after seven years out, all else equal, than all Census veterans, but earned \$7,000 less than those Census veterans working in aviation, as shown in Table 14. Officers separating after careers longer than four years lost ground relative to all Census veterans and Census aviators. For aviator separatees there appears to be little financial incentive to remaining in military service past the fourth year. Aviator separatees appeared to pass through a transition period after separation relative to all Census veterans. In the first year after separation, the aviator with 4 years of service earned about \$6,800 less but by the seventh year earned about \$2,100 more than all Census veterans, all else equal. The comparison of aviator separatees to Census veterans aviators shows the reverse pattern. In

relation to Census veterans aviators, aviator separatees fared better in the early years after separation than they did after seven years since separation.

Officer separatees working in the military as scientists and engineers fared well relative to all Census veterans and Census veteran engineers and scientists. Different career lengths did not have a significant effect on post-service earnings differentials as shown in Table 15. Scientist and engineer separatees did best relative to Census veterans in the early years after separation, probably reflecting the premium civilian employers were willing to pay for recent exposure to advanced military technology.

Officer administrator separatees fared about the same whether compared to all Census veterans or Census administrators. Separatees with military careers less than five years who have been in the civilian work force seven or more years earned about \$2,000 more than Census veterans, all else equal, as shown in Table 16. Different military career lengths had little impact on earnings, except for those officers separating with thirteen to sixteen years of service. Administrator separatees appear to go through a transition period where their earnings rise steadily after separation.

Not surprisingly, officer separatees working as physicians or dentists fared much better in their post-service careers than all Census veterans. The comparison of separatees to Census physicians and dentists shows that separatees earned substantially less than their peers in the first years after separation, but rapidly narrowed the differential. After seven years, separatees with four year military careers, earned about \$3,000 less than their Census veteran physician peers, all else equal (see Table 17).

Officers working in combat arms occupations are compared only to all veterans (see Table 18). Combat arms separatees appear to go through a transition period where earnings catch up to Census veteran salaries. After seven years, combat arms separatees earned about the same as civilians. Combat arms separatees did, however, face an earnings loss for remaining in the Services beyond their eighth year.

Table 14

OFFICER MALE SEPARATEES 1981 POST-SERVICE EARNINGS
RELATIVE TO CENSUS COUNTERPARTS^a

Independent Variables	Aviation	
	Comparison to Census Aviation Occupations	Comparison to All Census Veterans
Constant	• -7081 (697)	• 2061 (698)
Length of Service:		
LOS 5	-347 (255) 40%	• 1154 (255) 40%
LOS 9	• -2715 (287) 26%	• -1225 (287) 26%
LOS 13	• -2257 (633) 6%	-1111 (634) 6%
LOS 17	• -4386 (2130) 1%	• -4270 (2131) 1%
Education:		
Less than 12 years	• 16955 (6163) 0.2%	• 13916 (6168) 0.2%
12 to 15 years	• 4445 (616) 24%	• 4471 (617) 24%
Time Since Separation:		
0 - 1 years	• 4220 (975) 9%	• -8901 (976) 9%
2 - 3 years	• 6539 (695) 25%	• -3179 (695) 25%
4 - 6 years	• 4110 (634) 33%	• -1347 (634) 33%
Years in Last Grade Less Mean Time in Last Grade	• -665 (203) 0	-269 (203) 0
Race: Black	• 18324 (1373) 4%	• 6890 (1375) 4%
Pay Grade 1: O-5 and Above for LOS less than 17	-9198 (6506) 0.2%	2431 (6511) 0.2%
Pay Grade 2: O-5 and Above for LOS greater than or equal to 17	16740 (9879) 0.1%	• 23206 (9887) 0.1%
R ²	.1421	.0439
N	5205	5205
Dependent Variable Mean	-5447	2719
Mean Census Earnings	50377	29088

a. Regression model with the dependent variable calculated as the difference between separatees' actual earnings (adjusted to 1982 dollars with the ECI) and estimated earnings. Estimated earnings are based on regression coefficients from Census data for two subgroups: 1) full-time, male veterans with earnings greater than \$6,000 in the above profession, and 2) all full-time, male veterans with earnings greater than \$6,000.

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Table 15

OFFICER MALE SEPARATEES 1981 POST-SERVICE EARNINGS
RELATIVE TO CENSUS COUNTERPARTS^a

Independent Variables	Scientists & Engineers	
	Comparison to Census Scientists & Engineers	Comparison to All Census Veterans
Constant	• 5393 (645)	• 3391 (645)
Length of Service:		
LOS 5	339 (295) 36%	442 (295) 36%
LOS 9	-469 (333) 19%	-392 (333) 19%
LOS 13	-993 (750) 4%	-867 (750) 4%
LOS 17	2193 (3420) 0.2%	2223 (3421) 0.2%
Education:		
Less than 12 years	• 20616 (6039) 0.2%	• 24530 (6040) 0.2%
12 to 15 years	• -3834 (1445) 5%	• -699 (1445) 5%
Time Since Separation:		
0 - 1 years	6 (1176) 6%	-874 (1176) 6%
2 - 3 years	-969 (777) 19%	• -1644 (777) 19%
4 - 6 years	• -1781 (632) 37%	• -2112 (632) 37%
Years in Last Grade Less Mean Time in Last Grade	• -510 (229) 0	• -475 (229) 0
Race: Black	479 (1655) 3%	2152 (1655) 3%
Pay Grade 1: O-5 and Above for LOS less than 17	n.a.	n.a.
Pay Grade 2: O-5 and Above for LOS greater than or equal to 17	n.a.	n.a.
R ²	.0149	.0118
N	3987	3987
Dependent Variable Mean	4647	2789
Mean Census Earnings	33992	29088

a. Regression model with the dependent variable calculated as the difference between separatees' actual earnings (adjusted to 1982 dollars with the ECI) and estimated earnings. Estimated earnings are based on regression coefficients from Census data for two subgroups: 1) full-time, male veterans with earnings greater than \$6,000 in the above profession, and 2) all full-time, male veterans with earnings greater than \$6,000.

Table 16
OFFICER MALE SEPARATEES 1981 POST-SERVICE EARNINGS
RELATIVE TO CENSUS COUNTERPARTS^a

<u>Independent Variables</u>	<u>Administration</u>	
	<u>Comparison to Census Admin. Occupations</u>	<u>Comparison to All Census Veterans</u>
Constant	• 2200 (545)	• 1958 (545)
Length of Service:		
LOS 5	73 (231) 34%	103 (231) 34%
LOS 9	-437 (267) 22%	-405 (267) 22%
LOS 13	• -2431 (489) 6%	• -2385 (489) 6%
LOS 17	140 (1275) 1%	152 (1275) 1%
Education:		
Less than 12 years	7282 (4994) 0.2%	• 10861 (4993) 0.2%
12 to 15 years	1398 (1035) 8%	• 4812 (1035) 8%
Time Since Separation:		
0 - 1 years	• -5811 (941) 7%	• -6060 (941) 7%
2 - 3 years	• -2826 (613) 23%	• -3032 (613) 23%
4 - 6 years	• -1992 (538) 35%	• -2101 (538) 35%
Years in Last Grade Less Mean Time in Last Grade	• -531 (175) 0	• -518 (175) 0
Race: Black	• 1937 (865) 7%	1260 (865) 7%
Pay Grade 1: 0-5 and Above for LOS less than 17	-2318 (3351) 0.5%	-1226 (3351) 0.5%
Pay Grade 2: 0-5 and Above for LOS greater than or equal to 17	n.a.	n.a.
R ²	.0277	.0248
N	6465	6465
Dependent Variable Mean	72	67
Mean Census Earnings	31616	29088

a. Regression model with the dependent variable calculated as the difference between separatees' actual earnings (adjusted to 1982 dollars with the ECI) and estimated earnings. Estimated earnings are based on regression coefficients from Census data for two subgroups: 1) full-time, male veterans with earnings greater than \$6,000 in the above profession, and 2) all full-time, male veterans with earnings greater than \$6,000.

Table 17
OFFICER MALE SEPARATEES 1981 POST-SERVICE EARNINGS
RELATIVE TO CENSUS COUNTERPARTS^a

<u>Independent Variables</u>	<u>Medical & Dental</u>	
	<u>Comparison to Census M&D Occupations</u>	<u>Comparison to All Census Veterans</u>
Constant	• -2725 (1237)	• 23243 (1237)
Length of Service:		
LOS 5	• 4567 (506) 36%	• 4914 (506) 36%
LOS 9	• -3402 (759) 22%	• -3522 (759) 22%
LOS 13	1739 (2247) 3%	1808 (2247) 3%
LOS 17	6440 (12670) 0.1%	7326 (12670) 0.1%
Education:		
Less than 12 years	• 64029 (7620) 1%	• 41982 (7620) 1%
12 to 15 years	• 37105 (5690) 1%	10404 (5690) 1%
Time Since Separation:		
0 - 1 years	• -19775 (2228) 10%	• -24168 (2228) 10%
2 - 3 years	• -8223 (1605) 24%	• -11260 (1605) 24%
4 - 6 years	• -4236 (1448) 33%	• -5991 (1448) 33%
Years in Last Grade Less Mean Time in Last Grade	-999 (584) 0	-452 (584) 0
Race: Black	-1082 (3045) 4%	-871 (3045) 4%
Pay Grade 1: O-5 and Above for LOS less than 17	• 23800 (1794) 27%	• 27911 (1794) 27%
Pay Grade 2: O-5 and Above for LOS greater than or equal to 17	n.a.	n.a.
R ²	.1273	.1483
N	4976	4976
Dependent Variable Mean	5987	31497
Mean Census Earnings	57847	29088

a. Regression model with the dependent variable calculated as the difference between separatees' actual earnings (adjusted to 1982 dollars with the ECI) and estimated earnings. Estimated earnings are based on regression coefficients from Census data for two subgroups: 1) full-time, male veterans with earnings greater than \$6,000 in the above profession, and 2) all full-time, male veterans with earnings greater than \$6,000.

APPENDIX Q

Table 18
OFFICER MALE SEPARATEES 1981 POST-SERVICE EARNINGS
RELATIVE TO CENSUS COUNTERPARTS^a

<u>Independent Variables</u>	<u>Combat Arms Comparison to All Census Veterans</u>	<u>Other Comparison to All Census Veterans</u>
Constant	755 (560)	* 2365 (585)
Length of Service:		
LOS 5	* 916 (233) 34%	* -826 (228) 34%
LOS 9	-132 (283) 20%	-403 (310) 19%
LOS 13	* -3027 (535) 6%	* -2967 (610) 5%
LOS 17	763 (1518) 1%	805 (1851) 1%
Education:		
Less than 12 years	11300 (6220) 0.1%	10555 (7591) 0.1%
12 to 15 years	* 3986 (1012) 10%	* 9167 (990) 8%
Time Since Separation:		
0 - 1 years	* -7263 (932) 9%	* -4217 (889) 10%
2 - 3 years	* -4999 (681) 21%	-820 (683) 24%
4 - 6 years	* -2586 (574) 37%	-1135 (614) 34%
Years in Last Grade Less Mean Time in Last Grade	* -767 (180) 0	-29 (193) 0
Race: Black	* 2063 (804) 11%	-585 (927) 8%
Pay Grade 1: O-5 and Above for LOS less than 17	n.a.	-391 (5028) 0.2%
Pay Grade 2: O-5 and Above for LOS greater than or equal to 17	n.a.	n.a.
R ²	.0346	.0341
N	5736	5762
Dependent Variable Mean	-73	-56
Mean Census Earnings	29088	29088

a. Regression model with the dependent variable calculated as the difference between separatees' actual earnings (adjusted to 1982 dollars with the ECI) and estimated earnings. Estimated earnings are based on regression coefficients from Census data for full-time, male veterans with earnings greater than \$6,000.

APPENDIX Q

Retirees. Retired officer aviators fared poorly compared to Census veteran aviators, earning (after 20 years of service and seven years since retirement) between \$30,000 and \$35,000 less than Census veteran aviators. This large differential may reflect in part the difficulty retirees have breaking into higher paying jobs in aviation after twenty years or more in the Services. Career length and time since separation have either small or insignificant effects on the earnings differential (see Table 19).

Scientist and engineer officers retiring after 20 years and having been retired for seven or more years earned about \$1,200 more than their counterpart Census veteran scientists and engineers. Retired scientists and engineers did best relative to Census veterans in their first years of retirement, as shown in Table 20.

Retired administrators, like scientists and engineers, tended to fare best relative to their Census veteran peers in the early years of retirement. After seven years of retirement, officers with 20 years of service earned about \$5,000 less than Census veteran administrators, all else equal (see Table 21).

Similar to physician and dentist separatees, retired physicians and dentists earned much more than all Census veterans, but earned about the same as Census physicians and dentists. Retired physicians and dentists lost ground relative to Census veterans for each additional year they remained in military service past their retirement eligibility, as shown in Table 22. Retiree military physicians and dentists evidently go through a transition period. All else equal, retired doctors after 20 years of service earned about \$10,500 less than Census veteran doctors in their first retirement year, but by the seventh year of retirement earned about the same amount (\$1000 more).

Table 19
OFFICER MALE RETIREES 1981 POST-SERVICE EARNINGS
RELATIVE TO CENSUS COUNTERPARTS^a

Independent Variables	Aviation	
	Comparison to Census Aviation Occupations	Comparison to All Census Veterans
Constant	• -32596 (647)	• -7238 (645)
Length of Service After Retirement Eligibility	• -397 (96) 2.6 years	• -215 (96) 2.6 years
Education:		
Less than 12 years	• 14154 (3424) 1%	• 11977 (3412) 1%
12 to 15 years	• 8154 (773) 34%	• 11260 (770) 34%
Time Since Separation:		
0 - 1 years	1028 (973) 10%	• -1964 (969) 10%
2 - 3 years	965 (736) 26%	-821 (733) 26%
4 - 6 years	-1231 (675) 35%	• -1838 (672) 35%
Years in Last Grade Less Mean Time in Last Grade	-103 (138) 0	-44 (137) 0
Race: Black	• 18605 (2382) 1%	• 6370 (2373) 1%
Pay Grade: O-4 and Below	• -4108 (786) 44%	• -5077 (783) 44%
R ²	.0530	.0674
N	4479	4479
Dependent Variable Mean	-32398	-7061
Mean Census Earnings	50377	29088

a. Regression model with the dependent variable calculated as the difference between retirees' actual earnings (adjusted to 1982 dollars with the ECI) and estimated earnings. Estimated earnings are based on regression coefficients from Census data for two subgroups: 1) full-time, male veterans with earnings greater than \$6,000 in the above profession, and 2) all full-time, male veterans with earnings greater than \$6,000.

Table 20
OFFICER MALE RETIREES 1981 POST-SERVICE EARNINGS
RELATIVE TO CENSUS COUNTERPARTS^a

<u>Independent Variables</u>	<u>Scientists & Engineers</u>	
	<u>Comparison to Census Scientists & Engineers</u>	<u>Comparison to All Census Veterans</u>
Constant	1196 (706)	1042 (706)
Length of Service After Retirement Eligibility	• -398 (107) 3.0 years	• -317 (107) 3.0 years
Education:		
Less than 12 years	• 19117 (9657) 0.1%	• 23056 (9654) 0.1%
12 to 15 years	• 4785 (1326) 16%	• 7894 (1325) 16%
Time Since Separation:		
0 - 1 years	• 2980 (1001) 11%	• 2279 (1001) 11%
2 - 3 years	• 2648 (796) 23%	• 2104 (796) 23%
4 - 6 years	558 (722) 34%	267 (722) 34%
Years in Last Grade Less Mean Time in Last Grade	216 (202) 0	231 (202) 0
Race: Black	3993 (2864) 1%	• 5775 (2863) 1%
Pay Grade: O-4 and Below	• -6436 (935) 33%	• -6651 (935) 33%
R ²	.0183	.0196
N	4518	4518
Dependent Variable Mean	-202	34
Mean Census Earnings	33992	29088

a. Regression model with the dependent variable calculated as the difference between retirees' actual earnings (adjusted to 1982 dollars with the ECI) and estimated earnings. Estimated earnings are based on regression coefficients from Census data for two subgroups: 1) full-time, male veterans with earnings greater than \$6,000 in the above profession, and 2) all full-time, male veterans with earnings greater than \$6,000.

Table 21
OFFICER MALE RETIREES 1981 POST-SERVICE EARNINGS
RELATIVE TO CENSUS COUNTERPARTS^a

<u>Independent Variables</u>	<u>Administration</u>	
	<u>Comparison to Census Adm. Occupations</u>	<u>Comparison to All Census Veterans</u>
Constant	• -5019 (506)	• -4430 (506)
Length of Service After Retirement Eligibility	34 (70) 3.5 years	91 (70) 3.5 years
Education:		
Less than 12 years	4699 (3448) 0.4%	• 8218 (3448) 0.4%
12 to 15 years	• 3755 (922) 34%	• 7127 (922) 34%
Time Since Separation:		
0 - 1 years	1409 (750) 11%	995 (750) 11%
2 - 3 years	445 (572) 25%	99 (572) 25%
4 - 6 years	567 (531) 35%	358 (531) 35%
Years in Last Grade Less Mean Time in Last Grade	156 (145) 0	166 (145) 0
Race: Black	• 6400 (954) 5%	• 5758 (954) 5%
Pay Grade: O-4 and Below	• -6230 (731) 45%	• -6361 (731) 45%
r ²	.0165	.0197
N	8500	8500
Dependent Variable Mean	-5620	-3973
Mean Census Earnings	31616	29088

a. Regression model with the dependent variable calculated as the difference between retirees' actual earnings (adjusted to 1982 dollars with the ECI) and estimated earnings. Estimated earnings are based on regression coefficients from Census data for two subgroups: 1) full-time, male veterans with earnings greater than \$6,000 in the above profession, and 2) all full-time, male veterans with earnings greater than \$6,000.

Table 22

OFFICER MALE RETIREES 1981 POST-SERVICE EARNINGS
RELATIVE TO CENSUS COUNTERPARTS^a

Independent Variables	Medical & Dental	
	Comparison to Census M&D Occupations	Comparison to All Census Veterans
Constant	1028 (2251)	• 29931 (2249)
Length of Service After Retirement Eligibility	• -2258 (370) 2.3 years	• -2606 (370) 2.3 years
Education:		
Less than 12 years	• 73873 (15387) 0.3%	• 50720 (15379) 0.3%
12 to 15 years	• 35955 (3693) 12%	• 9942 (3691) 12%
Time Since Separation:		
0 - 1 years	• -11525 (3209) 11%	• -9862 (3207) 11%
2 - 3 years	• -6610 (2555) 26%	-4771 (2554) 26%
4 - 6 years	-1726 (2345) 38%	-252 (2344) 38%
Years in Last Grade Less Mean Time in Last Grade	713 (623) 0	725 (623) 0
Race: Black	-4412 (7295) 1%	-5222 (7291) 1%
Pay Grade: O-4 and Below	• -31936 (2786) 21%	• -31893 (2785) 21%
R ²	.1165	.1307
N	1587	1587
Dependent Variable Mean	-10080	15967
Mean Census Earnings	57847	29088

a. Regression model with the dependent variable calculated as the difference between retirees' actual earnings (adjusted to 1982 dollars with the ECI) and estimated earnings. Estimated earnings are based on regression coefficients from Census data for two subgroups: 1) full-time, male veterans with earnings greater than \$6,000 in the above profession, and 2) all full-time, male veterans with earnings greater than \$6,000.

Table 23
OFFICER MALE RETIREES 1981 POST-SERVICE EARNINGS
RELATIVE TO CENSUS COUNTERPARTS^a

<u>Independent Variables</u>	<u>Combat Arms Comparison to All Census Veterans</u>	<u>Other Comparison to All Census Veterans</u>
Constant	• -5403 (627)	• -7772 (626)
Length of Service After Retirement Eligibility	17 (89) 3.3 years	2 (86) 3.1 years
Education:		
Less than 12 years	7604 (7088) 0.1%	• 16092 (3719) 0.5%
12 to 15 years	• 8188 (966) 27%	• 10159 (938) 31%
Time Since Separation:		
0 - 1 years	-1214 (928) 12%	1571 (911) 11%
2 - 3 years	-159 (744) 24%	• 2184 (699) 26%
4 - 6 years	-583 (673) 32%	990 (648) 34%
Years in Last Grade Less Mean Time in Last Grade	• -498 (169) 0	11 (146) 0
Race: Black	• 4285 (1267) 5%	• 5408 (1318) 4%
Pay Grade: O-4 and Below	• -4882 (818) 33%	• -6082 (767) 46%
R ²	.0340	.0406
N	4968	4834
Dependent Variable Mean	-4909	-6071
Mean Census Earnings	29088	29088

a. Regression model with the dependent variable calculated as the difference between retirees' actual earnings (adjusted to 1982 dollars with the ECI) and estimated earnings. Estimated earnings are based on regression coefficients from Census data for full-time, male veterans with earnings greater than \$6,000.

Enlisted Personnel

Separatees. Technicians (electronics, communications and intelligence personnel) separated for seven or more years after a less than five year military career earned \$2200 more than Census veteran technicians, all else equal. This positive differential eroded with each year served beyond four as shown in Table 24. Technicians' earnings appear to peak relative to Census veteran technicians after two to three years as the differential rose to about \$3100 (2218 & 900) for separatees with two to three years of civilian experience and fell to \$2200 by the seventh year in the civilian workforce.

Administrators who separated after four years of service fared relatively well compared to Census veteran administrators after seven years in the civilian workforce. Administrators staying longer than four years earned less relative to their Census veteran peers with each additional year served. Similar to technicians, administrators' earnings peaked relative to Census veteran administrators after two to three years in the civilian workforce. After seven years out, the differential narrowed to about \$4500 (Table 25).

The difference between the occupation specific and all veteran comparison is not as dramatic for enlisted personnel working in medical and dental professions as it was for officers (see Table 26). This finding reflects the nature of enlisted medical and dental occupations -- the occupations are not high paying relative to other jobs in the civilian sector. The findings are very similar to those for separatee administrators. Separatees ending their military careers after four years of service and who have been in the civilian economy for seven or more years earned about \$5200 more than Census veterans in similar occupations. Separatees working longer than four years in the military lost between \$700 and \$900 from the \$5200 differential (after seven years out) for additional years served.

Table 2a
ENLISTED MALE SEPARATEES 1981 POST-SERVICE EARNINGS
RELATIVE TO CENSUS COUNTERPARTS^a

<u>Independent Variables</u>	<u>Technical</u>	
	<u>Comparison to Census Technical Occupations</u>	<u>Comparison to All Census Veterans</u>
Constant	• 2218 (274)	• 2830 (274)
Length of Service:		
LOS 5	• -416 (93) 30%	• -445 (93) 30%
LOS 9	• -932 (110) 23%	• -957 (111) 23%
LOS 13	• -1081 (162) 11%	• -1121 (162) 11%
LOS 17	• -1484 (629) 1%	• -1532 (629) 1%
Education:		
Less than 12 years	• 790 (217) 28%	• 2212 (217) 28%
Greater than 15 years	• -9233 (1988) 0.2%	• -14773 (1989) 0.2%
Time Since Separation:		
0 - 1 years	-145 (323) 10%	41 (324) 10%
2 - 3 years	• 900 (245) 23%	• 1054 (246) 23%
4 - 6 years	• 436 (223) 33%	• 527 (223) 33%
Years in Last Grade Less Mean Time in Last Grade	-79 (109) 0	-82 (109) 0
Race: Black	337 (209) 31%	• 2937 (209) 31%
Pay Grade 1: E-7 and Above for LOS less than 17	• 2912 (435) 8%	• 2874 (435) 8%
Pay Grade 2: E-7 and Above for LOS greater than or equal to 17	• 7148 (1606) 1%	• 7126 (1607) 1%
R ²	.0671	.1101
N	13195	13195
Dependent Variable Mean	936	2729
Mean Census Earnings	28257	29088

a. Regression model with the dependent variable calculated as the difference between separatees' actual earnings (adjusted to 1982 dollars with the ECI) and estimated earnings. Estimated earnings are based on regression coefficients from Census data for two subgroups: 1) full-time, male veterans with earnings greater than \$6,000 in the above profession, and 2) all full-time, male veterans with earnings greater than \$6,000.

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Table 25
ENLISTED MALE SEPARATEES 1981 POST-SERVICE EARNINGS
RELATIVE TO CENSUS COUNTERPARTS^a

<u>Independent Variables</u>	<u>Administration</u>	
	<u>Comparison to Census Admin. Occupations</u>	<u>Comparison to All Census Veterans</u>
Constant	• 4542 (227)	• 821 (227)
Length of Service:		
LOS 5	• -1025 (73) 30%	• -960 (73) 30%
LOS 9	• -848 (90) 23%	• -817 (90) 23%
LOS 13	• -908 (131) 12%	• -879 (131) 12%
LOS 17	-382 (419) 2%	-364 (419) 2%
Education:		
Less than 12 years	• 2342 (170) 34%	• 2760 (170) 34%
Greater than 15 years	n.a.	n.a.
Time Since Separation:		
0 - 1 years	204 (279) 10%	-137 (279) 10%
2 - 3 years	• 1173 (211) 22%	• 915 (211) 22%
4 - 6 years	• 816 (187) 34%	• 683 (187) 34%
Years in Last Grade Less Mean Time in Last Grade	• -184 (79) 0	• -177 (79) 0
Race: Black	• 3090 (167) 36%	• 3230 (166) 36%
Pay Grade 1: E-7 and Above for LOS less than 17	• 1916 (391) 6%	• 1972 (391) 6%
Pay Grade 2: E-7 and Above for LOS greater than or equal to 17	1805 (1188) 1%	1812 (1187) 1%
R ²	.1893	.1858
N	14579	14579
Dependent Variable Mean	3637	164
Mean Census Earnings	29824	29088

a. Regression model with the dependent variable calculated as the difference between separatees' actual earnings (adjusted to 1982 dollars with the ECI) and estimated earnings. Estimated earnings are based on regression coefficients from Census data for two sub-groups: 1) full-time, male veterans with earnings greater than \$6,000 in the above profession, and 2) all full-time, male veterans with earnings greater than \$6,000.

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Table 26

ENLISTED MALE SEPARATEES 1981 POST-SERVICE EARNINGS
RELATIVE TO CENSUS COUNTERPARTS^a

Independent Variables	Medical & Dental	
	Comparison to Census M&D Occupations	Comparison to All Census Veterans
Constant	• 5161 (332)	• 454 (333)
Length of Service:		
LOS 5	• -739 (126) 32%	• -814 (126) 32%
LOS 9	• -950 (163) 17%	• -1010 (163) 17%
LOS 13	-764 (421) 3%	• -849 (421) 3%
LOS 17	-2665 (2210) 0.2%	-2748 (2212) 0.2%
Education:		
Less than 12 years	• 3993 (315) 21%	• 3427 (315) 21%
Greater than 15 years	-976 (4805) 0.1%	-3335 (4808) 0.1%
Time Since Separation:		
0 - 1 years	• -1798 (423) 11%	• -1387 (423) 11%
2 - 3 years	52 (338) 22%	394 (338) 22%
4 - 6 years	-356 (300) 34%	-160 (300) 34%
Years in Last Grade Less Mean Time in Last Grade	-46 (153) 0	-40 (153) 0
Race: Black	• 1301 (271) 32%	• 3715 (271) 32%
Pay Grade 1: E-7 and Above for LOS less than 17	• 3432 (1243) 1%	• 3355 (1244) 1%
Pay Grade 2: E-7 and Above for LOS greater than or equal to 17	5959 (6251) 0.1%	5867 (6256) 0.1%
R ²	.1129	.1415
N	5909	5909
Dependent Variable Mean	4383	348
Mean Census Earnings	24665	29088

a. Regression model with the dependent variable calculated as the difference between separatees' actual earnings (adjusted to 1982 dollars with the ECI) and estimated earnings. Estimated earnings are based on regression coefficients from Census data for two sub-groups: 1) full-time, male veterans with earnings greater than \$6,000 in the above profession, and 2) all full-time, male veterans with earnings greater than \$6,000.

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Table 27
ENLISTED MALE SEPARATEES 1981 POST-SERVICE EARNINGS
RELATIVE TO CENSUS COUNTERPARTS^a

<u>Independent Variables</u>	<u>Combat</u>	<u>Mechanical</u>	<u>Other</u>
	<u>Arms</u>	<u>Comparison to</u>	<u>Comparison to</u>
	<u>Comparison to</u>	<u>All Census</u>	<u>All Census</u>
	<u>All Census</u>	<u>Veterans</u>	<u>Veterans</u>
	<u>Veterans</u>	<u>Veterans</u>	<u>Veterans</u>
Constant	• 870 (234)	• 2197 (250)	• 838 (339)
Length of Service			
LOS 5	• -1099 (78) 32%	• -664 (83) 30%	• -1301 (136) 28%
LOS 9	• -845 (106) 21%	• -1093 (101) 23%	• -1019 (295) 7%
LOS 13	• -1265 (189) 7%	• -1024 (153) 10%	-1601 (826) 1%
LOS 17	-536 (690) 1%	-953 (517) 1%	n.a.
Education:			
Less than 12 years	• 3001 (186) 35%	• 2198 (187) 35%	• 3151 (331) 29%
Greater than 15 years	n.a.	n.a.	• -14232 (5392) 0.1%
Time Since Separation:			
0 - 1 years	-230 (304) 11%	392 (301) 11%	• -1200 (548) 10%
2 - 3 years	• 984 (234) 24%	• 1704 (233) 23%	-587 (393) 26%
4 - 6 years	• 468 (214) 34%	• 723 (212) 33%	-354 (375) 32%
Years in Last Grade Less Mean Time in Last Grade	55 (91) 0	-140 (91) 0	• 581 (133) 0
Race: Black	• 2787 (183) 36%	• 3079 (192) 33%	• 3846 (322) 32%
Pay Grade 1: E-7 and Above for LOS less than 17	• 2339 (556) 3%	• 5772 (473) 4%	• 10183 (2696) 0.3%
Pay Grade 2: E-7 and Above for LOS greater than or equal to 17	• 6546 (1868) 0.4%	• 5611 (1515) 0.5%	n.a.
R ²	.1728	.1434	.1293
N	10856	14269	4033
Dependent Variable Mean	322	2123	1204
Mean Census Earnings	29088	29088	29088

a. Regression model with the dependent variable calculated as the difference between separatees' actual earnings (adjusted to 1982 dollars with the ECI) and estimated earnings. Estimated earnings are based on regression coefficients from Census data for full-time, male veterans with earnings greater than \$6,000.

The findings for enlisted separatees working in combat arms or mechanical occupations are similar to those for administrators (see Table 27). Combat arms and mechanic separatees leaving before their fifth year of service and who had been in the civilian workforce for more than seven years earned slightly more than all Census veterans in the comparison group. Separatees face disincentives to remaining in military service beyond the fourth year because their post-service earnings declined relative to their Census veteran peers for additional years served after four. Both combat arms professionals and mechanics make a relatively smooth transition to civilian life -- the first years after separation were not associated with a large drop in earnings relative to all Census veterans.

Retirees. Enlisted retirees' post-service earnings follow a similar pattern across most occupations. (See Tables 28 through 31). In the early years of retirement, after 20 years of service, retirees earned up to \$11,000 less than their Census veteran counterparts. However, over the first six years of retirement the gap in earnings between military retirees and Census veterans narrowed, but earnings never caught up to those of the Census comparison group. Retirees leaving after 20 year careers and retired for seven or more years still earned several thousand dollars less than their Census veteran counterparts. In addition, retirees remaining in the service for more than 20 years lost several hundred dollars relative to their Census veteran peers for each additional year of service past 20.

Table 28
ENLISTED MALE RETIREES 1981 POST-SERVICE EARNINGS
RELATIVE TO CENSUS COUNTERPARTS^a

<u>Independent Variables</u>	<u>Technical</u>	
	<u>Comparison to Census Technical Occupations</u>	<u>Comparison to All Census Veterans</u>
Constant	• -4792 (268)	• -4838 (269)
Length of Service After Retirement Eligibility	• -337 (42) 2.5 years	• -396 (42) 2.5 years
Education:		
Less than 12 years	• 3311 (265) 21%	• 4738 (265) 21%
Greater than 15 years	n.a.	n.a.
Time Since Separation:		
0 - 1 years	• -2798 (383) 9%	• -2406 (383) 9%
2 - 3 years	• -812 (286) 21%	• -488 (286) 21%
4 - 6 years	-279 (247) 35%	-81 (247) 35%
Years in Last Grade Less Mean Time in Last Grade	-109 (60) 0	-109 (60) 0
Race: Black	• 2863 (233) 30%	• 5478 (233) 30%
Pay Grade: E-6 and Below	• -2423 (262) 34%	• -2425 (262) 34%
R ²	.0509	.0974
N	10056	10056
Dependent Variable Mean	-5413	-4339
Mean Census Earnings	28257	29088

a. Regression model with the dependent variable calculated as the difference between retirees' actual earnings (adjusted to 1982 dollars with the ECI) and estimated earnings. Estimated earnings are based on regression coefficients from Census data for two subgroups: 1) full-time, male veterans with earnings greater than \$6,000 in the above profession, and 2) all full-time, male veterans with earnings greater than \$6,000.

Table 29

ENLISTED MALE RETIREES 1981 POST-SERVICE EARNINGS
RELATIVE TO CENSUS COUNTERPARTS^a

Independent Variables	Administration	
	Comparison to Census Admin. Occupations	Comparison to All Census Veterans
Constant	• -3763 (224)	• -7003 (224)
Length of Service After Retirement Eligibility	• -292 (31) 2.8 years	• -292 (31) 2.8 years
Education:		
Less than 12 years	• 3560 (190) 28%	• 4005 (190) 28%
Greater than 15 years	n.a.	n.a.
Time Since Separation:		
0 - 1 years	• -3571 (317) 8%	• -3623 (317) 8%
2 - 3 years	• -1051 (234) 20%	• -1077 (234) 20%
4 - 6 years	• -417 (196) 35%	• -419 (196) 35%
Years in Last Grade Less Mean Time in Last Grade	• -323 (57) 0	• -322 (57) 0
Race: Black	• 5706 (175) 37%	• 5835 (175) 37%
Pay Grade: E-6 and Below	• -2202 (212) 35%	• -2207 (212) 35%
R ²	.1222	.1299
N	13715	13715
Dependent Variable Mean	-2890	-5968
Mean Census Earnings	29824	29088

a. Regression model with the dependent variable calculated as the difference between retirees' actual earnings (adjusted to 1982 dollars with the ECI) and estimated earnings. Estimated earnings are based on regression coefficients from Census data for two subgroups: 1) full-time, male veterans with earnings greater than \$6,000 in the above profession, and 2) all full-time, male veterans with earnings greater than \$6,000.

Table 30

ENLISTED MALE RETIREES 1981 POST-SERVICE EARNINGS
RELATIVE TO CENSUS COUNTERPARTS^a

Independent Variables	Medical & Dental	
	Comparison to Census M&D Occupations	Comparison to All Census Veterans
Constant	-616 (329)	• -6510 (329)
Length of Service After Retirement Eligibility	• -331 (56) 2.4 years	• -420 (56) 2.4 years
Education:		
Less than 12 years	• 4873 (443) 11%	• 4250 (444) 11%
Greater than 15 years	n.a.	n.a.
Time Since Separation:		
0 - 1 years	• -4721 (485) 9%	• -4116 (485) 9%
2 - 3 years	• -2553 (375) 20%	• -2061 (375) 20%
4 - 6 years	• -973 (316) 33%	• -684 (316) 33%
Years in Last Grade Less Mean Time in Last Grade	-59 (86) 0	-59 (86) 0
Race: Black	• 3064 (312) 25%	• 5452 (313) 25%
Pay Grade: E-6 and Below	• -2430 (347) 30%	• -2423 (347) 30%
R ²	.0783	.1064
N	4805	4805
Dependent Variable Mean	-2115	-7445
Mean Census Earnings	24665	29088

a. Regression model with the dependent variable calculated as the difference between retirees' actual earnings (adjusted to 1982 dollars with the ECI) and estimated earnings. Estimated earnings are based on regression coefficients from Census data for two subgroups: 1) full-time, male veterans with earnings greater than \$6,000 in the above profession, and 2) all full-time, male veterans with earnings greater than \$6,000.

Table 31
ENLISTED MALE RETIREEES 1981 POST-SERVICE EARNINGS
RELATIVE TO CENSUS COUNTERPARTS^a

<u>Independent Variables</u>	<u>Combat Arms</u> <u>Comparison to</u> <u>All Census</u> <u>Veterans</u>	<u>Mechanical</u> <u>Comparison to</u> <u>All Census</u> <u>Veterans</u>	<u>Other</u> <u>Comparison to</u> <u>All Census</u> <u>Veterans</u>
Constant	• -7744 (277)	• -5528 (254)	• -8854 (654)
Length of Service After Retirement Eligibility years	• -189 (44) 2.4 years	• -390 (38) 2.5 years	-104 (149) 1.7
Education:			
Less than 12 years	• 4699 (273) 23%	• 5203 (221) 27%	• 5106 (951) 23%
Greater than 15 years	-4604 (4719) 0.1%	n.a.	n.a.
Time Since Separation:			
0 - 1 years	• -3436 (420) 9%	• -2547 (352) 9%	6614 (3424) 1%
2 - 3 years	• -672 (314) 19%	-354 (268) 20%	1415 (1558) 7%
4 - 6 years	-80 (263) 34%	-7 (229) 35%	651 (1785) 5%
Years in Last Grade Less Mean Time in Last Grade	• -220 (80) 0	47 (62) 0	• 600 (149) 0
Race: Black	• 4447 (253) 27%	• 6221 (213) 31%	• 6823 (875) 28%
Pay Grade: E-6 and Below	• -1210 (317) 28%	• -2710 (248) 35%	• -3164 (869) 38%
r ²	.0933	.1178	.1482
N	7191	11677	578
Dependent Variable Mean	-6711	-4402	-6952
Mean Census Earnings	29088	29088	29088

a. Regression model with the dependent variable calculated as the difference between retirees' actual earnings (adjusted to 1982 dollars with the ECI), and estimated earnings. Estimated earnings are based on regression coefficients from Census data for full-time, male veterans with earnings greater than \$6,000.

V. AGE-EARNINGS PROFILES

The previous two chapters have contained the results of our regression analysis of post-service earnings differentials for separatees and retirees. In this chapter we use those results to construct age-earnings profiles for some different groups of former military personnel, to provide some insights into potential career earnings profiles for individuals who choose to enter the military and leave at different points in their careers.

This chapter presents age-earnings profiles for typical former officers and enlisted personnel as estimated by a three-stage procedure. In order to estimate earnings as a function of age, we have to make several assumptions about the appropriate values to use for the other explanatory variables in our model. The first stage in the estimation process takes the Census sample and estimates earnings as a function of age, education, and race. For our "typical" officers we assume that the appropriate comparison characteristics in the Census sample are a college degree for level of education and non-black for race. Thus, the Census equation we use for officer age-earnings profiles gives us an estimate of earnings as a function of age for a college-educated, non-black male veteran. This represents the estimate for the mean earnings for non-black, college-educated male veterans in our Census sample, as a function of age.

The second stage in our earnings estimation procedure is to estimate the difference in earnings between a male officer from the IRS data set and the comparably aged and educated Census sample. In this stage of the estimation process we have to choose "typical" values for the characteristics that determine post-service earnings differentials. We first want to choose the same characteristics that we have used to derive a Census age-earnings profile, i.e., college degree for education and non-black for race. It should be noted here that the education variable in the IRS data set measures the level of education at the time of separation from the military, not at the time the wage and salary income was earned. To the extent that separatees and retirees add to their education after leaving the service and move into a different education category, the education variable for the IRS data set

understates the actual level of education achieved. Thus using the level of education as shown on an IRS record as the appropriate level for comparison in the Census sample tends to bias the Census earnings actually compared downward from the truly comparable (for education level) Census earnings. Thus in our age-earnings profiles the Census earnings profiles are biased downward slightly as age increases.

The other characteristics which explain post-service earnings in our model and need to be chosen are pay grade, time in grade less mean time in grade, length of service, and time since separation. For our typical officer we chose low pay grade for separatees, high pay grade for retirees, and zero for time in grade less mean time in grade (i.e., the separatee or retiree served the mean time in grade for the population in question). We have presented separate age-earnings profiles for length of service of four, eight, twelve, sixteen, twenty, twenty-five, and thirty years, and the time since separation variable has the appropriate value as age is 0-1, 2-3, 4-6, or greater than 6 years greater than the age at separation. The age at separation is determined by adding the length of service to the age at entry, which we assumed to be 23 years for the "typical" officer.

For enlisted personnel, the same procedure for non-black male veterans was followed, with the following differences: "typical" education level was assumed to be a high school degree, and age at entry was assumed to be 19 years. The same caveat applies about the downward bias of the Census profile due to the education level of the IRS data being measured at separation.

The third stage in our procedure is to add the estimate for the Census earnings (a function of age) to the estimate for the earnings differential (which is also a function of age from the time since separation variable with the entry age assumption) to obtain an estimate for post-service earnings for the "typical" officer or enlisted separatee or retiree. The shape of this earnings profile is determined by the shape of the Census profile for ages greater than 6 years after separation due to the structure of our model, which assumes no change in earnings differentials beyond this point as our sample does not contain observations beyond nine years after separation.

In addition to the estimate for mean Census earnings, which is shown on our age-earnings profiles, there is a profile that represents an estimate for the 75th percentile of earnings from the Census sample. These estimates are derived from data from the Current Population Survey conducted by the Bureau of the Census for 1977 ^{15/} Appendix IV contains an explanation of the procedure used to obtain this estimate.

The age-earnings profiles also include a profile for Basic Military Compensation, which was derived using information on base pay for officers and enlisted personnel by grade and year of service and on force strength by grade and year of service. Our profile for Basic Military Compensation includes base pay, basic authorization for quarters, basic authorization for subsistence, and the tax advantage. It does not include any special and incentive pays. Appendix IV contains a detailed explanation of the computations for Basic Military Compensation. It should be noted that as this earnings profile was derived from the existing force strength and the distribution of that force strength for a given length of service among the different grades, it represents the actual 1982 distribution of education levels, pay grade levels, entry ages, and time in last grade levels, and not the "typical" values for these variables used to estimate post-service earnings.

The last earnings profile on our graphs is the estimated post-service earnings plus retirement pay, for officer and enlisted retirees (length of service 20 years or more). Retirement pay was derived from the BMC earnings profile described above, using the formula which assigns retirement pay of 50 percent of the base pay portion of BMC at separation if the retiree leaves after 20 years of service, and adds 2-1/2 percent of base pay per year of service up to a maximum of 75 percent of base pay at separation if length of service is 30 years or more.

^{15/}As reported in Cooper, Op. Cit. p. 42-43.

To summarize, the officer earnings profiles that follow are for college graduate (at separation), non-black males who entered the service at age 23, and the enlisted earnings profiles are for high school graduate (at separation), non-black males who entered the service at age 19. Age-earnings profiles for other groups are contained in Appendix IV.

Career earnings profiles for officers separating after 4, 8, 12, 16, 20, 25, and 30 years of service are shown in Figure 7. Earnings profiles for enlisted personnel who separate after 4, 8, 12, 16, 20, 25, and 30 years of service are presented in Figure 8.

Figure 7 indicates that immediately upon separation post-service earnings for officers separating either after 4 or 8 years of service are somewhat higher than the officer's last BMC. In all of the other cases (separations after either 12, 16, 20, 25, or 30 years of service), post-service earnings are initially lower than the last BMC. The drop-off ranges from about \$2,500 (12 years of service) to \$22,000 (30 years of service). However, for retirees (20, 25, or 30 years of service prior to separation), retirement pay more than compensates for the drop. Thus, officer retirees who obtain full-time employment received about \$11,000 more than their last BMC.

Figure 7 also shows how the age-earnings profiles compare to those of the Census counterparts. Officers separating after four years begin earning less than the mean earnings of comparably aged veterans, but quickly catch up and surpass their Census counterparts. Officers separating after 8 years start earning more than the mean earnings of their comparably aged peers, and continue to do so over the course of their careers. The post-service earnings for this group of separatees is well above the mean Census profile, and for a time approaches the 75th percentile. Those officers separating after 12 years show a pattern similar to that of the 4-year separatees. Officer retirees have age-earnings profiles which lie below the Census mean profile throughout their careers. However, when retirement pay is added to their post-service earnings officer retirees are close to or well above the 75th percentile.

Figure 7.

POST SERVICE EARNINGS OFFICERS

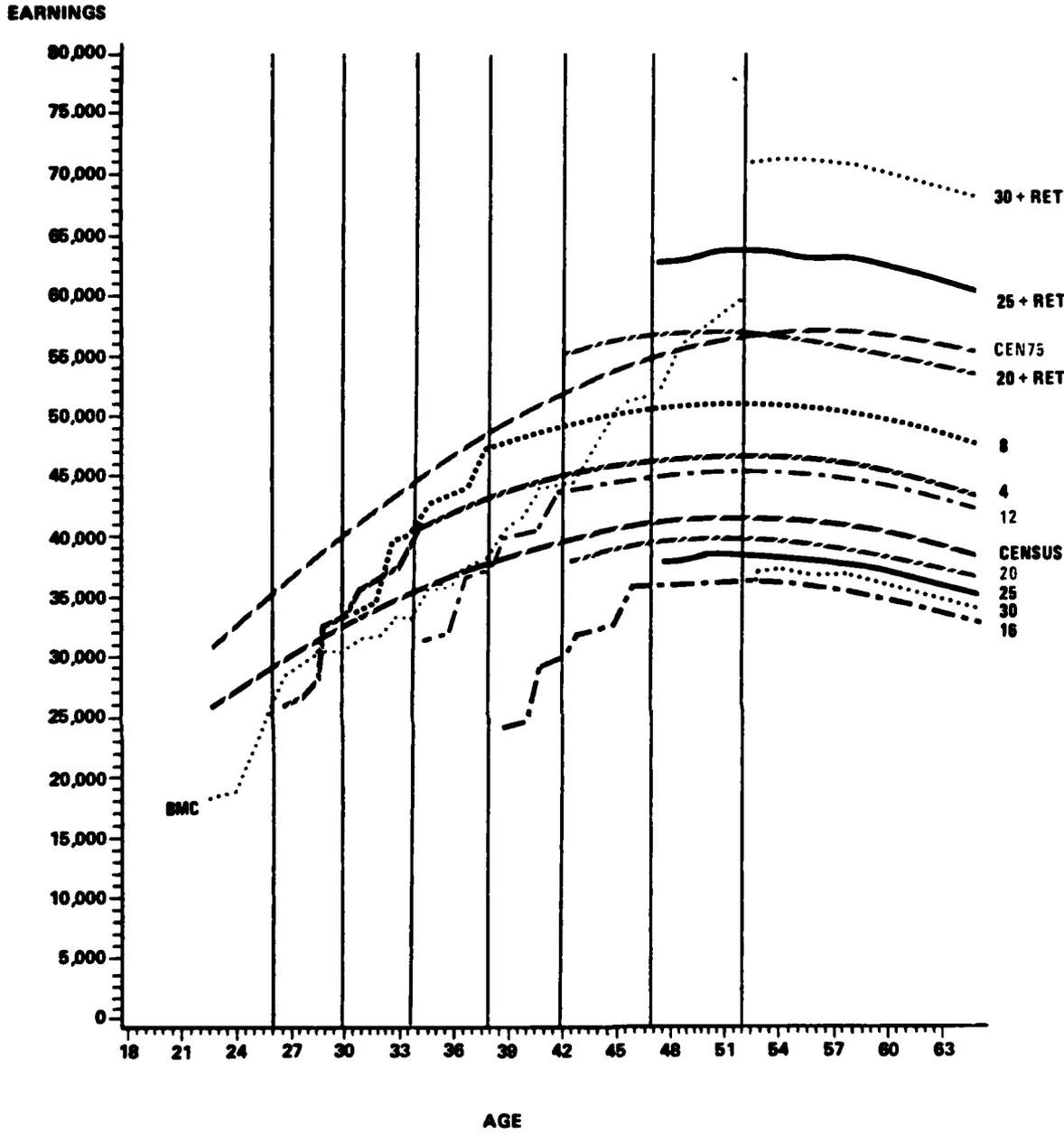
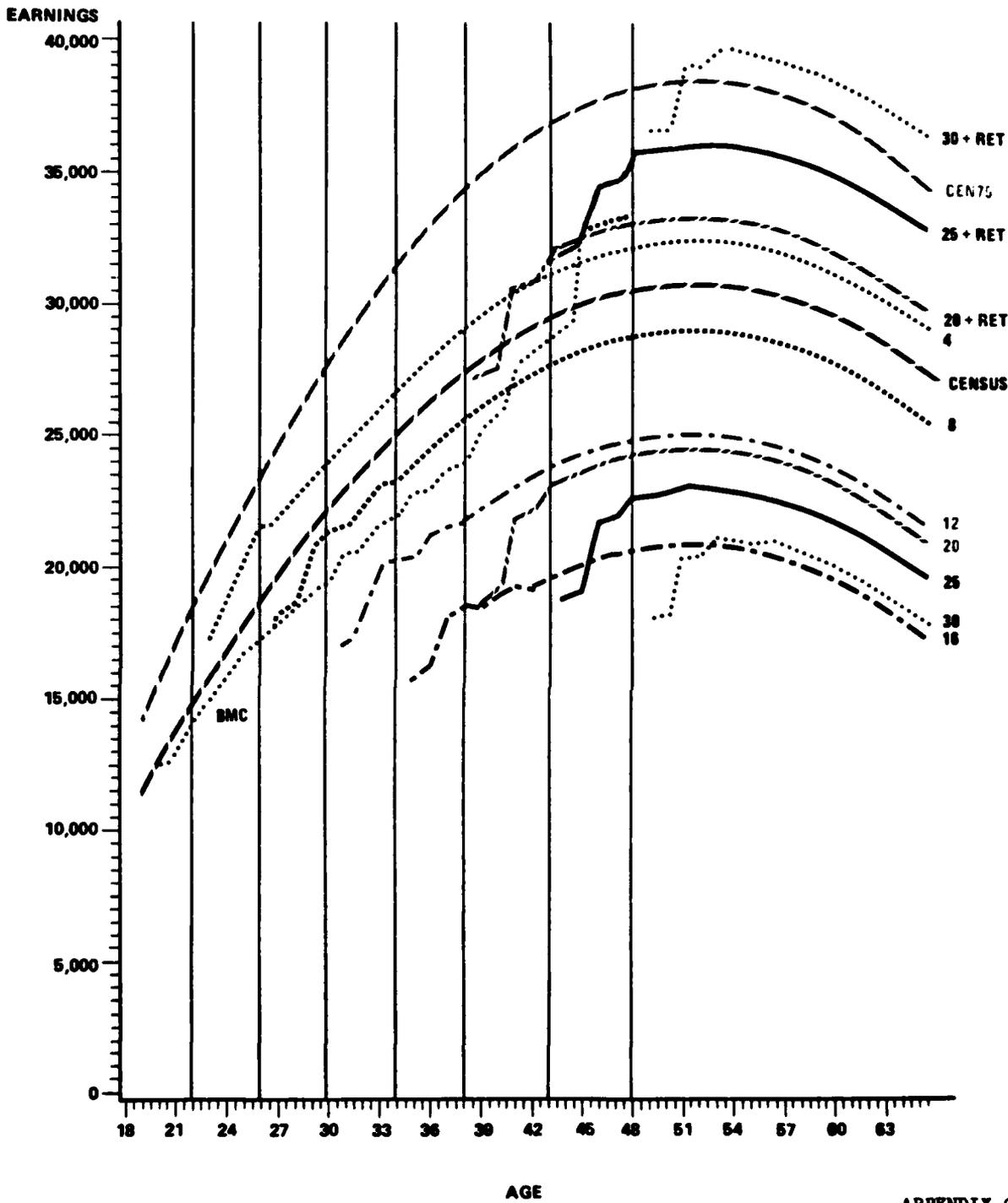


Figure 8 presents the age-earnings profiles for enlisted personnel separating at various points in their military careers. Only for enlisted personnel separating after 4 or 8 years who receive full-time employment does initial post-service earnings exceed their last BMC. As was the case for officers, those personnel receiving retirement pay end up initially receiving more than their last BMC (about \$3,000) upon separation from the service.

A different pattern of age-earnings profiles is seen in Figure 8 for enlisted personnel than was seen for officers. In all cases, except enlisted personnel separating after 4 years of service, the age-earnings curve is below the Census mean earnings profile. While the career earnings profile of 8-year separatees is close to the mean, the profiles of all other separatees are well below the mean Census profile. Retirement pay makes a large difference for the three retiree groups examined. Retirement pay plus post-service earnings places the 20 and 25-year retirees between the mean and 75th percentile, and the 30-year retiree above the 75th percentile.

Figures 9 through 12 present lifetime earnings profiles for officers and enlisted personnel separating at 8 and 20 years by military occupation. Officers separating after 8 years are shown in Figure 9. Initially, post-service earnings are greater than the last BMC for those officers in medical and dental professions, and scientific and engineering military occupations. Those officers in aviation, combat arms, and administration and supply services received post-service earnings at about the same level as their last BMC. Over their careers, medical and dental officers have earnings well above the 75th percentile. Scientists and engineers have earnings between the mean and 75th percentile throughout their careers. Those officers in aviation, combat arms, and administration begin with earnings lower than their Census veteran counterparts. Within five years, earnings for these officers catch up to and surpass the earnings of their comparably aged Census veteran counterparts.

Figure 8
POST SERVICE EARNINGS
 ENLISTED PERSONNEL



AGE

APPENDIX Q

Figure 9

POST SERVICE EARNINGS

OFFICERS SEPARATED AFTER 8 YEARS (BY OCCUPATION)

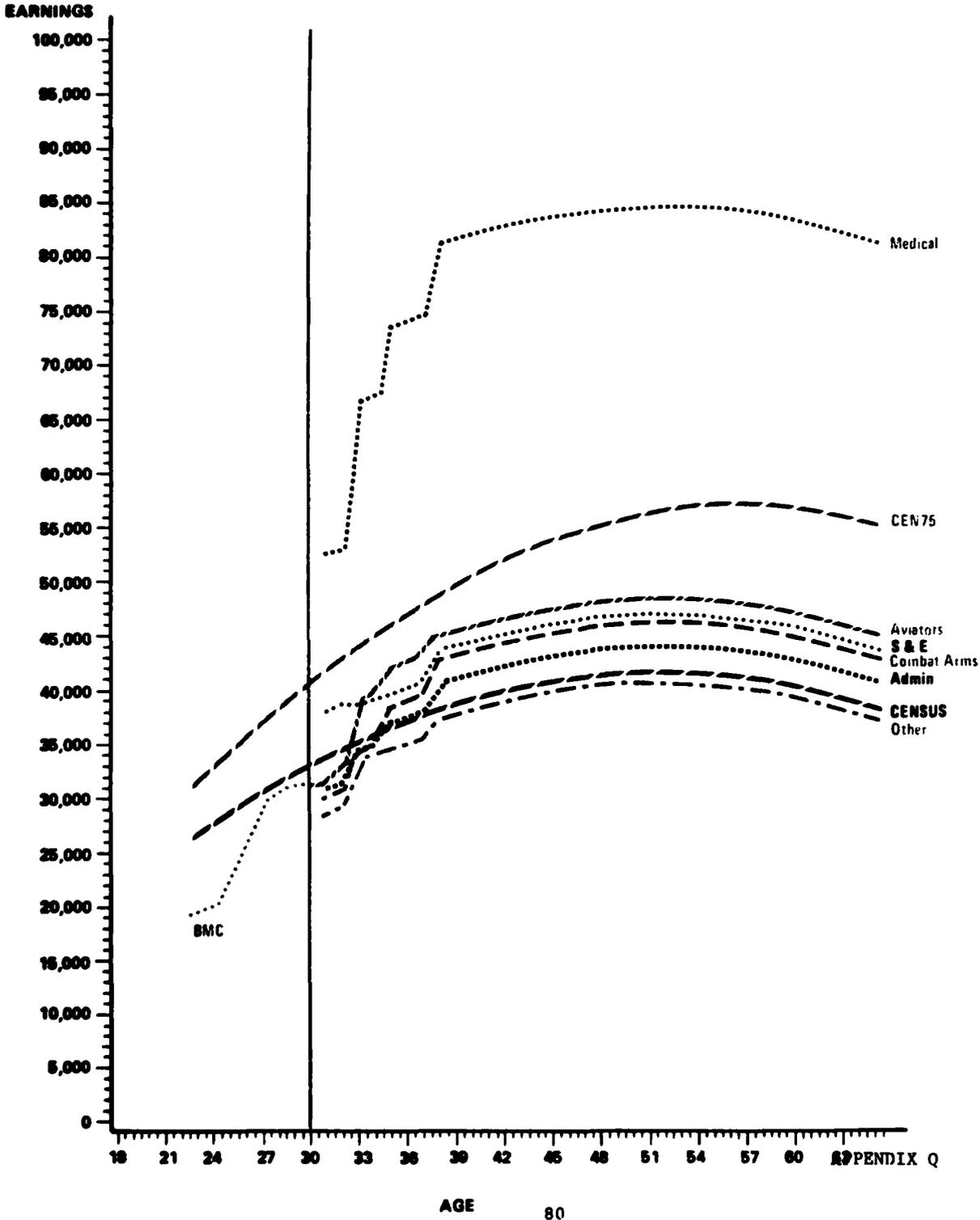


Figure 10 presents the age-earnings profiles of officers separated after 20 years. Looking only at post-service earnings, only medical and dental officers earn more than their last BMC. However, if retirement pay of \$16,801 is added to post-service earnings, all occupations receive more than their last BMC upon separation. Without retirement pay, earnings remain below those of comparably aged Census counterparts except for civilians in medical, scientific and engineering occupations. Physicians and dentists have career earnings well above the 75th percentile, and scientists and engineers have career earnings just above the mean Census profile. Retirement pay, however, has a large impact in that post-service earnings plus retirement pay results in all occupations having earnings profiles well above the mean Census profile.

Figure 11 demonstrates that those enlisted personnel separating after 8 years who were in technical occupations or who were electricians, mechanics, or craftsmen initially received earnings above their last BMC. The age-earnings profiles for these two groups are close to the mean Census profile. Enlisted personnel in the medical and dental, administrative, and combat arms occupation groups had lower earnings than their last BMC, and had age-earnings profiles about \$3,000 to \$4,000 below the mean throughout their careers.

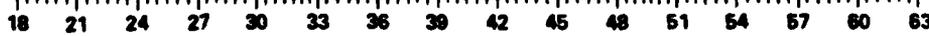
Finally, Figure 12 shows that enlisted personnel separating after 20 years of service initially receive from \$3,500 to \$7,000 less than their last BMC depending on their military occupation. In addition, their age-earnings profiles range from \$5,000 to \$8,000 below the Census mean profile. If retirement pay of \$8,417 is considered, the age-earnings curves would be pushed close to or above the Census mean, again depending on the military occupation of the enlisted retiree.

Figure 10

POST SERVICE EARNINGS

OFFICERS SEPARATED AFTER 20 YEARS (BY OCCUPATION) -

EARNINGS



AGE

BMC

Medical

CEN75

S & E

CENSUS

Admin

Combat Arms

Aviators

Other

Figure 11

POST SERVICE EARNINGS

ENLISTED PERSONNEL SEPARATED AFTER 8 YEARS (BY OCCUPATION)

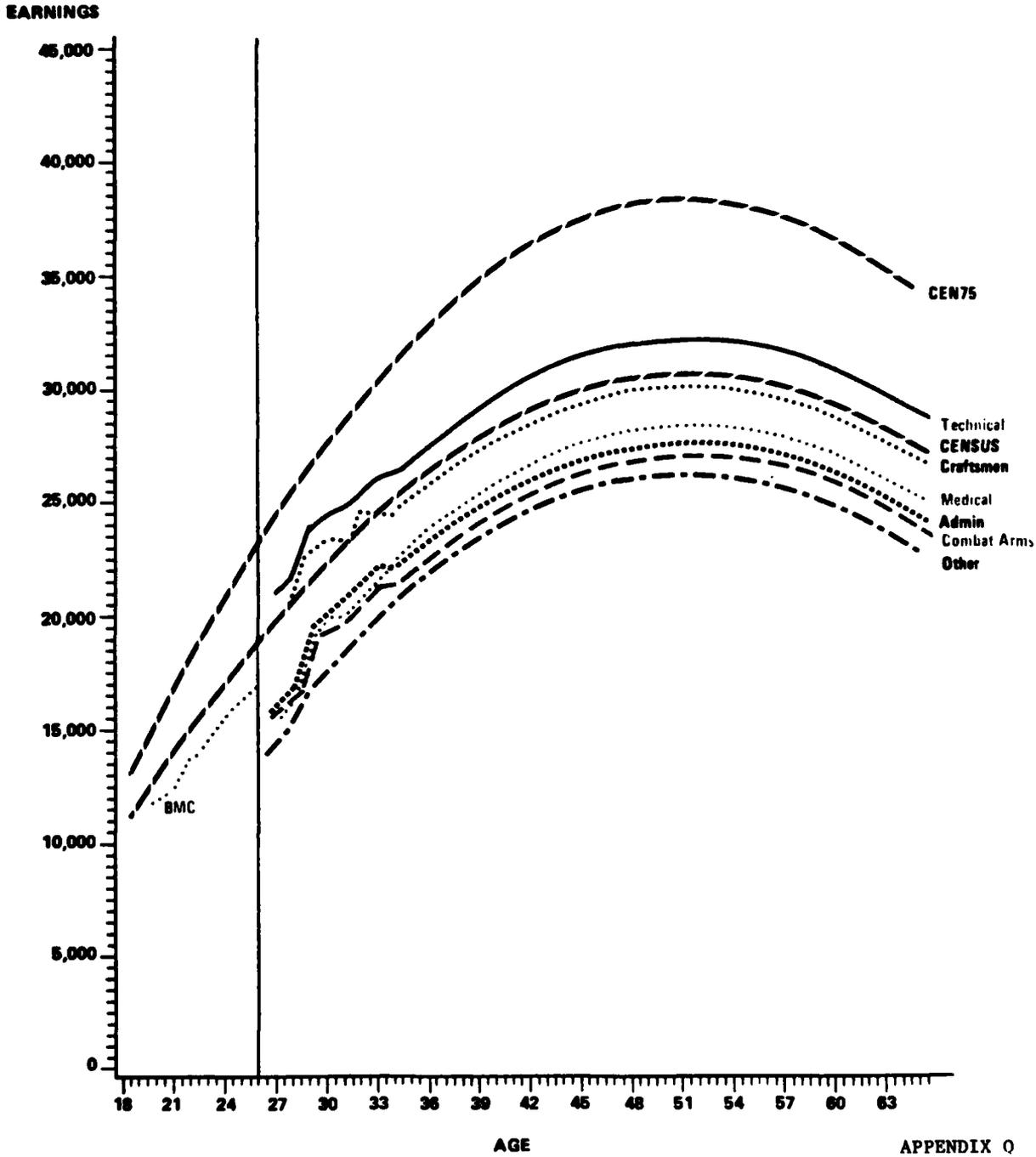
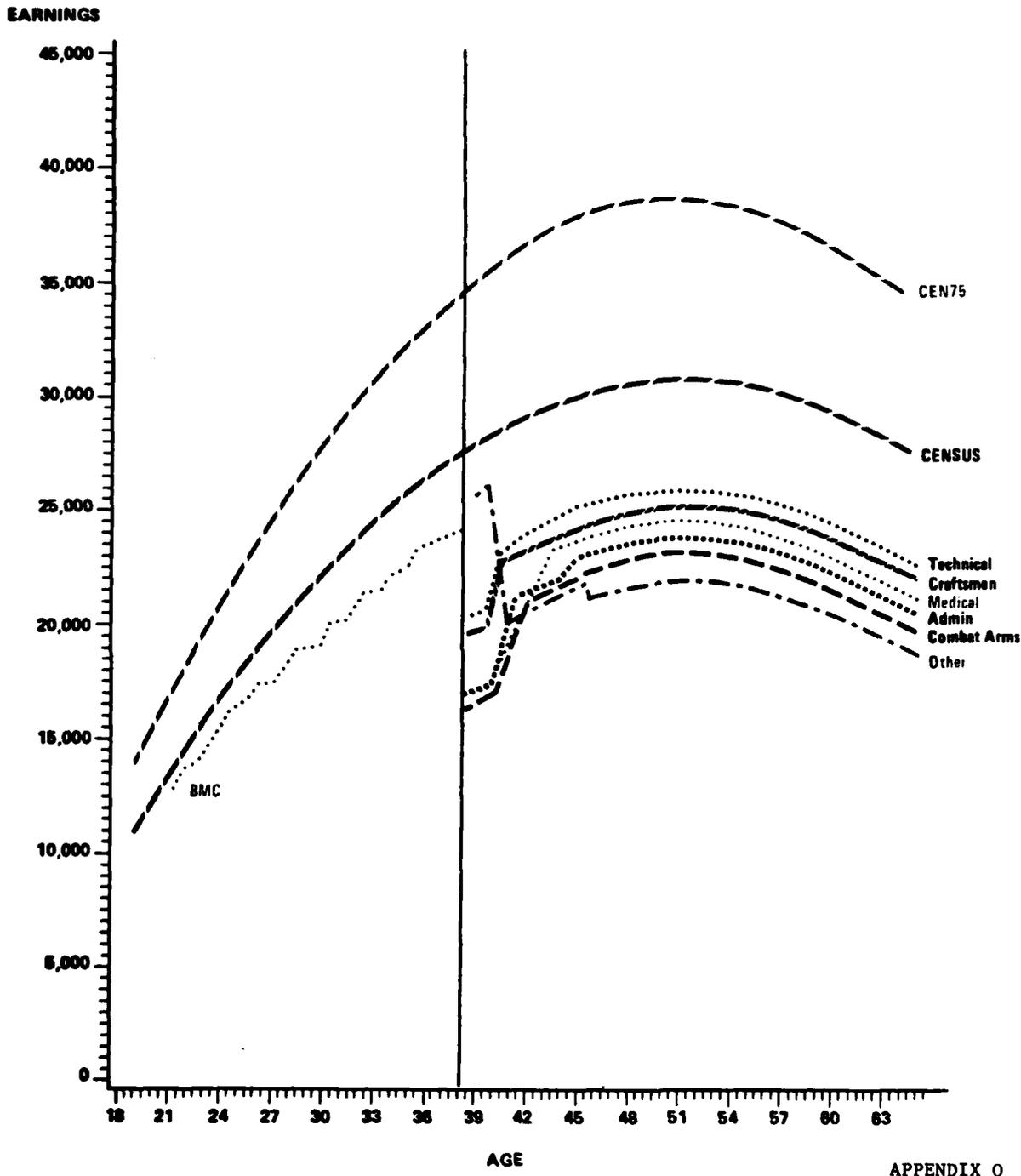


Figure 12

POST SERVICE EARNINGS

ENLISTED PERSONNEL SEPARATED AFTER 20 YEARS (BY OCCUPATION)



APPENDIX Q

Present Discounted Values of Earnings Streams

Figures 7 and 8 presented age-earnings profiles for different lengths of service derived from the results of our regression analysis on post-service earnings differentials for officers and enlisted personnel. Another way to look at the implications of our regression results is to compare present discounted values of earnings streams representative of different lengths of service.^{16/} Tables 32-37 show present discounted values of the earnings streams depicted in Figures 7 and 8 for discount rates of 10%, 5%, and 3%. These discount rates represent the range of values chosen by the QRMC for its work. For each discount rate, present values of future income streams through age 65 are calculated at three different points in the "typical" officer or enlisted career: at 0 years length of service (i.e., before entering military service), at 4 years length of service (i.e., having completed 4 years of military service), and at 8 years length of service (after completing 8 years of military service). At each of these career points, the present discounted value at that point in time is calculated for possible earnings streams corresponding to different lengths of service: 4, 8, 12, 16, 20, 25, and 30 years. Also calculated is the present value of the future mean Census earnings stream (and the 75th percentile earnings stream) at those three points in time. As in the figures presented above, all dollar amounts are in 1982 dollars.

For example, in Table 32, potential future earnings streams for typical officers with a discount rate of 10% at age 27 after 4 years of service are shown in the center two columns. The 4 year length of service row shows the present value of expected future earnings if the officer left immediately after the 4 years (i.e., it does not include military earnings for the first four years of service, as do the first two

^{16/} It should be noted that our regression results do not specifically estimate a stream of earnings for one individual, but rather estimate the way earnings for individuals with certain characteristics vary across different ages.

columns). The 8 year length of service row shows the present value of expected future earnings if the officer left after 4 additional years of service (i.e., it includes 4 years of BMC between the ages of 27 and 31 and then expected post-service earnings after separation at age 31). For lengths of service 20, 25, and 30 years, retirement pay is added to each year's post-service earnings in the present value calculation for wage and salary income plus retirement pay (the other lengths of service have the same present value of earnings with and without retirement pay).

The present value calculations presented in these tables provide some additional information about the age-earnings profiles estimated from our regression models. At a discount rate of 10%, which represents time preference since the earnings streams are calculated in constant dollars, for officers a career length of service of 8 years has a larger present value than each of the alternative lengths of service at each career point presented. Only the Census 75th percentile has a higher present value of earnings. When we look at the present values for a discount rate of 5%, however, which discounts future income less than a 10% rate, for a typical officer a 30 year career length of service has the highest present value (including retirement pay) at each career point, followed by 25 year and 8 year lengths of service. For a discount rate of 3%, 30 and 25 year career lengths of service again have the highest present values at each career point, and the present value of the 20 year length of service career has become larger than that for the 8 year length of service. Thus those officers with higher time preference will tend to value the career monetary earnings of an 8 year career length of service the highest, while the longer (30, 25, 20 year) career lengths of service will have monetary career earnings values highest for those officers with less strong time preferences.

For enlisted personnel, at all three career points and for each of the three discount rates presented, a four year career length of service has a higher present value of earnings than each of the career length alternatives. Again, only the Census 75th percentile has a higher present value. Only after 8 years of service, when it is no longer possible to leave after 4 years, does a career length of 30 years (and 25 and 20

as well) have a higher present value of earnings, even for the 3% discount rate. Thus financial incentives appear strong for enlisted personnel to separate after 4 years of service, even including retirement pay and even if their time preference is very weak (i.e., at a 3% discount rate).

The present discounted values of earnings on Tables 32-37, like the age-earnings profiles on Figures 7-12, are based on our regression results, which are based on cross-sectional data. Thus, cohort and period effects may be present. As indicated in Appendix VII, this may bias the type of longitudinal implications that the above analysis implies. In particular, it may tend to bias the estimates of the earnings differential upward for officer separatees. The next chapter addresses some of these issues relating to longitudinal analysis with the IRS/SSA data sets.

TABLE 32

PRESENT VALUES OF FUTURE INCOME STREAMS
OFFICERS, DISCOUNT RATE = 10%

Length of Service	At age 23, 0 Years LOS		At age 27, 4 Years LOS		At age 31, 8 Years LOS	
	Wage and Salary Income	Income Plus Retirement Pay	Wage and Salary Income	Income Plus Retirement Pay	Wage and Salary Income	Income Plus Retirement Pay
4 years	\$ 355,286	355,286	409,407	409,407	-	-
8	366,918	366,918	426,438	426,438	470,661	470,661
12	336,012	336,012	381,188	381,188	404,411	404,411
16	312,870	312,870	347,305	347,305	354,803	354,803
20	330,748	355,151	373,480	409,209	393,126	445,437
25	335,649	356,106	380,656	410,607	403,631	447,483
30	341,932	357,203	389,856	412,214	417,101	449,836
0 (Census)	359,901	359,901	384,113	384,113	400,777	400,777
0 (Census 75th)	450,105	450,105	488,109	488,109	517,406	517,406

TABLE 33

PRESENT VALUES OF FUTURE INCOME STREAMS
OFFICERS, DISCOUNT RATE = 5%

Length of Service	At age 23, 0 Years LOS		At age 27, 4 Years LOS		At age 31, 8 Years LOS	
	Wage and Salary Income	Income Plus Retirement Pay	Wage and Salary Income	Income Plus Retirement Pay	Wage and Salary Income	Income Plus Retirement Pay
n years	\$ 675,991	675,991	722,847	722,847	-	-
8	709,957	709,957	764,134	764,134	792,418	792,418
12	639,195	639,195	678,122	678,122	687,870	687,870
16	565,934	565,934	589,073	589,073	579,629	579,629
20	613,678	703,361	647,106	756,117	650,170	782,672
25	625,804	714,854	661,845	770,086	668,084	799,652
30	646,988	724,816	687,595	782,195	699,384	814,371
0 (Census)	650,892	650,892	664,296	664,296	663,975	663,975
0 (Census 75th)	833,241	833,241	860,964	860,964	871,340	871,340

TABLE 34
 PRESENT VALUES OF FUTURE INCOME STREAMS
 OFFICERS, DISCOUNT RATE = 3%

Length of Service	At age 23, 0 Years LOS		At age 27, 4 Years LOS		At age 31, 8 Years LOS	
	Wage and Salary Income	Income Plus Retirement Pay	Wage and Salary Income	Income Plus Retirement Pay	Wage and Salary Income	Income Plus Retirement Pay
4 years	\$ 988,401	988,401	973,087	973,087	-	-
8	1,003,649	1,003,649	1,035,270	1,035,270	1,035,279	1,035,279
12	899,379	899,379	917,913	917,913	903,193	903,193
16	777,896	777,896	781,182	781,182	749,301	749,301
20	851,532	1,009,086	864,060	1,041,389	842,581	1,042,166
25	868,599	1,034,825	883,270	1,070,359	864,202	1,074,772
30	903,415	1,057,318	922,455	1,095,674	908,305	1,103,265
0 (Census)	895,963	895,963	887,514	887,514	862,201	862,201
0 (Census 75th)	1,160,706	1,160,706	1,161,662	1,161,662	1,140,548	1,140,548

TABLE 35

PRESENT VALUES OF FUTURE INCOME STREAMS
ENLISTED PERSONNEL, DISCOUNT RATE = 10%

Length of Service	At age 19, 0 Years LOS		At age 23, 4 Years LOS		At age 27, 8 Years LOS	
	Wage and Salary Income	Income Plus Retirement Pay	Wage and Salary Income	Income Plus Retirement Pay	Wage and Salary Income	Income Plus Retirement Pay
4 years	\$ 222,289	222,289	261,700	261,700	-	-
6	197,800	197,800	225,846	225,846	249,448	249,448
12	183,940	183,940	205,553	205,553	219,738	219,738
16	177,183	177,183	195,661	195,661	205,254	205,254
20	186,107	198,820	208,726	227,339	224,383	251,634
25	187,699	199,221	211,056	227,926	227,795	252,494
30	190,748	200,133	215,521	229,261	234,332	254,448
0 (Census)	210,115	210,115	242,148	242,148	267,282	267,282
0 (Census 75th)	262,644	262,644	302,685	302,685	334,103	334,103

TABLE 36

PRESENT VALUES OF FUTURE INCOME STREAMS
ENLISTED PERSONNEL, DISCOUNT RATE = 5%

Length of Service	At age 19, 0 Years LOS		At age 23, 4 Years LOS		At age 27, 8 Years LOS	
	Wage and Salary Income	Income Plus Retirement Pay	Wage and Salary Income	Income Plus Retirement Pay	Wage and Salary Income	Income Plus Retirement Pay
4 years	\$ 483,661	483,661	482,523	482,523	-	-
8	392,741	392,741	420,630	420,630	439,066	439,066
12	354,818	354,818	374,534	374,534	383,036	383,036
16	328,600	328,600	342,666	342,666	344,300	344,300
20	356,736	405,511	376,865	436,152	385,869	457,932
25	357,931	410,738	378,318	442,506	387,635	465,656
30	366,595	417,426	388,849	450,634	400,436	475,536
0 (Census)	418,501	418,501	450,345	450,345	469,795	469,795
0 (Census 75th)	523,127	523,127	562,931	562,931	587,243	587,243

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TABLE 37

PRESENT VALUES OF FUTURE INCOME STREAMS
ENLISTED PERSONNEL, DISCOUNT RATE = 3%

Length of Service	At age 19, 0 Years LOS		At age 23, 4 Years LOS		At age 27, 8 Years LOS	
	Wage and Salary Income	Income Plus Retirement Pay	Wage and Salary Income	Income Plus Retirement Pay	Wage and Salary Income	Income Plus Retirement Pay
4 years	\$ 642,961	642,961	669,532	669,532	-	-
8	568,792	568,792	586,054	586,054	590,765	590,765
12	507,953	507,953	517,579	517,579	513,696	513,696
16	460,956	460,956	464,684	464,684	454,162	454,162
20	508,392	596,365	518,073	617,087	514,252	625,693
25	507,128	608,565	516,651	630,818	512,651	641,148
30	519,720	623,412	530,832	647,530	528,612	659,956
0 (Census)	606,613	606,613	627,076	627,076	631,786	631,786
0 (Census 75th)	758,266	758,266	783,844	783,844	789,733	789,733

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VI. LONGITUDINAL ANALYSIS

The previous chapters have focused on a cross-sectional analysis of the IRS data base. We turn now to a longitudinal analysis of the SSA data base. Using earnings reported to the SSA for the same sample of military personnel leaving military service between 1972 and 1980, the distribution of earnings over time for each of the year-of-separation cohorts was examined. The analysis of the IRS data base described in Chapters III-V is based on cross-sectional analysis of post-service earnings for the year 1981, so that findings of the existence or lack of transition effects in particular may be biased by the distribution of individuals among year-of-separation cohorts. To the extent that individuals who left the service in 1972 and 1980 faced different labor market conditions upon separation, or had different individual characteristics (including preferences) for which we were unable to control, the estimates of transition effects will be affected by the different post-service earnings' histories of different year of separation cohorts.

The SSA data set is a potentially rich source of information which could be used to examine the transition effects on individual cohorts through time. The SSA data set could also be used to analyze occupational groups of officers and enlisted personnel. A careful approach to the technical problems created by the truncation of the distribution of earnings at the Social Security maximum for each year would need to be developed. Unfortunately, given the time frame of the study, this work could not be carried out.

In order to gain an understanding of the nature of these cohort effects, we used the SSA data set to track the distribution of earnings over time for each of the year of separation cohorts. Tables 38-41 show the overall results. The tables show for each cohort the percent of full-time workers in each year with wage and salary income for that year greater than or equal to \$21,297, the Social Security maximum for 1973 expressed in 1982 dollars. The 1973 maximum was chosen because it is the lowest cutoff level in 1982 dollars for the period 1973-1981. By choosing the lowest SSA cutoff, we eliminate misleading results due to higher incomes being truncated to a lower SSA cutoff than the level chosen for our longitudinal analysis. For each group

(male officer separatees and retirees, and male enlisted separatees and retirees), the percent of full-time workers with incomes over the 1973 SSA maximum increases as the time since separation increases. This seems to indicate that in broad terms, at least, longitudinal analysis may indicate evidence of a transition effect. Appendix VIII contains further longitudinal distributions of income by length of service and education, and this finding is borne out by those results as well.

The diagonal entries of Tables 38-41 illustrate the cohort effect, and perhaps explain why our cross-sectional regression analysis did not find a stronger transition effect for some groups. The diagonal represents the distribution percentage by year of separation cohort for the first full year of earnings. Except for enlisted separatees, the more recent cohorts have a higher percentage of full-time workers with income at or above the 1973 maximum than the earlier cohorts. Since our analysis for 1981 earnings would have more recent cohorts representing those separatees with a shorter time in the civilian labor force, this would tend to blunt the effect of time since separation on earnings, reducing the estimate of a transition effect.

The continued building on the IRS data set with additional years of income data should provide valuable information to better estimate the transition effect.

TABLE 38
LONGITUDINAL DISTRIBUTION OF EARNINGS
OFFICER MALE SEPARATEES WORKING FULL TIME
PERCENT WITH EARNINGS AT OR ABOVE 1973 SSA MAXIMUM

Year of Separation	Year of Earnings									
	1973	1974	1975	1976	1977	1978	1979	1980	1981	
1972	62	68	73	75	78	80	81	83	83	
1973		62	66	70	74	79	80	81	82	
1974			66	68	73	77	79	82	83	
1975				59	64	69	73	77	79	
1976					67	72	76	81	83	
1977						68	75	79	81	
1978							71	78	80	
1979								75	79	
1980									72	

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TABLE 39
 LONGITUDINAL DISTRIBUTION OF EARNINGS
 OFFICER MALE RETIREES WORKING FULL TIME
 PERCENT WITH EARNINGS AT OR ABOVE 1973 SSA MAXIMUM

		Year of Earnings								
Year of Separation	1973	1974	1975	1976	1977	1978	1979	1980	1981	
1972	55	62	63	65	65	67	68	68	68	
1973		60	62	64	66	69	68	69	70	
1974			60	60	63	65	67	69	69	
1975				57	61	65	65	68	69	
1976					57	63	66	68	70	
1977						62	66	70	71	
1978							66	71	73	
1979								72	74	
1980									73	

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TABLE 40
 LONGITUDINAL DISTRIBUTION OF EARNINGS
 ENLISTED MALE SEPARATEES WORKING FULL TIME
 PERCENT WITH EARNINGS AT OR ABOVE 1973 SSA MAXIMUM

Year of Separation	Year of Earnings									
	1973	1974	1975	1976	1977	1978	1979	1980	1981	
1972	27	35	34	37	40	43	46	46	46	
1973		27	29	33	35	38	42	42	43	
1974			23	27	30	35	38	38	39	
1975				20	26	32	36	38	38	
1976					22	29	34	35	36	
1977						25	31	34	35	
1978							28	33	34	
1979								26	30	
1980									23	

TABLE 41

LONGITUDINAL DISTRIBUTION OF EARNINGS
 ENLISTED MALE RETIREES WORKING FULL TIME
 PERCENT WITH EARNINGS AT OR ABOVE 1973 SSA MAXIMUM

Year of Separation	Year of Earnings								
	1973	1974	1975	1976	1977	1978	1979	1980	1981
1972	20	28	29	32	35	36	39	39	40
1973		23	26	30	33	36	37	39	40
1974			21	27	31	34	37	39	40
1975				19	26	32	36	39	41
1976					23	31	35	38	40
1977						25	33	38	42
1978							28	36	39
1979								31	38
1980									30

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VII. CONCLUSIONS

The analysis in this report has provided, for the first time, comparable analysis of post-service earnings differentials for military separatees and retirees. The examination of post-service earnings over the entire spectrum of career lengths is an important link in developing a firmer understanding of the financial incentives affecting the career choices of members of the Armed Forces.

The findings drawn from this report must be tempered by an understanding of four limitations of the IRS data bases used in the analysis. First, the data includes individuals leaving military service between 1972 and 1980; therefore the longest time since separation is nine years. As a result the data cannot shed light on retirees' and separatees' civilian careers past their ninth year in the civilian work force. Second, the data for some attributes such as age and education reflect cell averages rather than individual specific attributes. The use of cell averages reduces the efficiency of the parameter estimates and increases estimate variances. In addition, the overall number of cells constrained the level of detail contained in the variables. Third, the occupational crosswalk between the IRS and Census data bases matches individuals from the Census based on their current occupation to retirees and separatees based on the occupations in which they worked while in military service. Earnings differentials reported for an occupation may then reflect either a voluntary or an involuntary choice to switch to a lower-paying occupation, as well as differentials between individuals in the same occupation. Fourth, the IRS data set contains information on an individual's level of education at the time of separation or retirement from the military service, not at the time the wage and salary income was earned. No attempt has been made to analyze the effects of Veterans Administration benefits for education, which serve to increase the educational levels of early separatees. Depending on the extent to which separatees and retirees have received further education, the imputed Census earnings are biased downwards (because actual education levels would be higher than those recorded in the IRS data set). The size of the potential bias cannot be determined without information about the additional education received after separation or retirement.

While the limitations of the IRS data base constrain the analysis presented in this report, the limitations are not insurmountable. First, updating the IRS data base will strengthen longitudinal analysis. Second, improved information about retirees' and separatees' current occupation and education levels would address two other limitations. Data on the Veterans Administration benefits by cell are available on the IRS/SSA data tapes. Only the need to employ cell averages to protect individuals' privacy appears to be difficult to overcome. Notwithstanding the above limitations, the analysis in this report supports several important findings.

Overall, officer separatees who separate prior to the 16th year of service earn more in the private sector than the mean of their Census veteran peers. The private sector earnings for enlisted separatees with greater than four years of service is less than the mean of their Census veterans peers. Both officer and enlisted retirees earn less in the private sector than their Census counterparts. The difference is much more significant for male enlisted retirees. When a military retiree's retirement benefit is taken into consideration the overall earnings picture significantly improves. This observation must be coupled with the fact that those reaching a career length of 20 or more years have been subjected to a continuous quality screening to weed out poor performers.

The differences between retirees and separatees can have an important effect on retention behavior and illustrates the need to analyze both retiree and separatee post-service earnings. To the extent that separatees working full time fare better than full-time retirees in their post-service careers, current officers and enlisted personnel face financial incentives to choose shorter military careers and enter the civilian workforce to increase their post-service earnings potential. Many other factors affect these financial incentives; e.g., the nature of the military retirement system clearly has an important effect on the decision to separate or remain to retirement.

Another important finding is that officer separatees and enlisted retirees go through a significant transition period where their earnings are significantly less than those of their Census veteran peers. For both groups the transition period is about seven to nine years -- earnings continue to rise relative to civilian counterparts through the longest period of time since separation in our sample, nine years.

The occupation-specific regressions showed striking differences between retirees and separatees in different occupations. In general, those with timely and relevant skills fared better in their post-service careers. Scientists, engineers, physicians and dentists earned much more, on average, than all Census veterans, and overall, earned about the same as Census veterans in comparable occupations. Individuals retiring or separating with less timely skills fared worse than civilians in the same occupation. For example, retired aviators earned less than all Census veterans and much less than Census aviators; however, aviators who separated earlier in their military careers fared much better in their post-service employment. While the skills of both groups of aviators may be similar, the retirees appear either to have greater difficulty finding jobs in aviation comparable to those they held in the military, or to choose lower paying jobs in aviation or in other occupations.

The analysis of the IRS data base has provided important insights into the factors affecting the post-service earnings differentials of military separatees and retirees. These insights, together with analysis of individuals' perceptions of post-service earnings, can aid the understanding of retention behavior.

APPENDIX I: CREATION OF THE IRS/SSA DATA FILES

I. Introduction

The Post-Service Earnings History File was created from data in the files of the Social Security Administration (SSA), the Internal Revenue Service (IRS), and the Defense Manpower Data Center (DMDC) in order to form the basis for an assessment of the post-service earnings of military personnel. Because the file contains earnings data over a number of years for a large sample of individuals, its usefulness will extend far beyond the purposes of the QRMC; in cooperation with the IRS, DMDC will continue to supplement and maintain this file. Currently, the file consists of two files, with data from SSA and IRS records respectively. At some future date, these files will be merged, and information on additional years' earnings of the sample members will be added as it becomes available from IRS. Occupational data may also be available in the future. Further, the file will be supplemented with samples drawn from DMDC's annual separation files in later years.

II. Sample Screening, Stratification and Selection from DMDC Separation Files

The first step in constructing the Post-Service Earnings History Files was to draw a sample from DMDC separation files. The following describes the universe from which the sample was drawn and the techniques used to construct the sample.

1. Screening

The DMDC Separation Files contain records on some 6.7 million enlisted personnel and 468,000 officers who have separated from the military since 1972. Records from these files were sampled and merged with earnings data from the Internal Revenue Service (IRS) and Social Security Administration (SSA) in order to provide a source of data for the analysis of post-service earnings of military personnel.

The DMDC Separation Files are organized with one record for each separation from the Service; thus a given individual may appear several times if he or she had discontinuous service in the military. The frequency of multiple separations is shown by the following table.

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	<u>Enlisted</u>	<u>Officers</u>
Individuals on File:	6,680,242	468,743
Separations per individuals		
1.	5,390,843	460,463
2.	867,491	7,740
3.	308,683	446
4.	92,530	62
5.	18,032	19
6.	2,399	6
7.	242	4
8.	21	2
9.	1	1

For those with multiple separations, only the last separation was considered. From the above totals, observations were deleted for the following criteria, in the given order.

	<u>Enlisted</u>	<u>Officers</u>
Total	6,680,242	468,743
Separation date out of range (1972-1980)	1,838,363	143,642
Unknown pay grade	5,745	6
Service transaction separation	846,203	10,866
Separated for medical disqualification	206,739	9,092
Separated for death	22,029	3,747
Entry into officer program	60,148	(NA)
Undesirable behavior or performance	1,001,814	18,047
Unknown length of services	1,295	862
Less than 2 years service	361,230	18,991
Sex unknown	4	45
Males, race unknown	1,606	432
Education unknown	<u>14,620</u>	<u>7,730</u>
Final universe	2,320,446	255,284

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2. Sample Stratification

The remaining 2,320,446 enlisted personnel and 255,284 officers were arranged in cells according to their values of the following variables: service (4 categories), sex and race (3 categories), pay grade (low and high: 2 categories), education (2), year of separation (9), length of service (16), and occupation category (6). This results in a possible total of 41,472 cells each for officers and enlisted; however, most of these cells were empty.

These cells form the basis for the sample selection. The following table shows the number of cells for various cell populations.

<u>Cell Population</u>	<u>Officers</u>		<u>Enlisted</u>	
	<u>No. of Cells</u>	<u>Total Population</u>	<u>No. of Cells</u>	<u>Total Population</u>
0	30,299	0	26,827	0
1,2	4,053	5,278	4,264	5,680
3-10	3,388	18,914	3,734	20,292
11-20	1,348	19,963	1,508	22,281
21-25	392	8,949	457	10,460
26+	1,992	202,180	4,682	2,261,733
Total	41,472	255,284	41,472	2,320,446

Records were selected from these cells using the following method: everyone (officers and enlisted) was selected from cells of size 3 to 25 (and for reasons of confidentiality and cost none from cells of size 1 or 2). Then, from cells of size 26 or higher, 25 records were randomly selected. This results in the following sample sizes:

	<u>Officers</u>	<u>Enlisted</u>
From cells 3-25	47,826	53,033
From cells 26+ (25 x 4682)	<u>49,800</u> (25 x 1992)	<u>117,050</u>
Total	97,626	170,083
Total officers and enlisted: 267,709		

3. Random Sampling Procedure

For cells of size 25 or less, no random sampling was done; those in cells of size 1 or 2 were dropped, and all records in cells of sizes 3 to 25 were selected.

For a cell of size 26 or more, where N is the cell size, $K = 25/N$ is the sampling frequency. For each cell, a random number between 1 and K was drawn, and the corresponding record for that cell (the Rth record to appear in the cell, where R is the random draw) was selected. Then every Kth record in that cell was selected. Records on the separation file are arranged in order of Social Security number; this systematic random sampling procedure is widely used for such files.

III. File Contents

The Post-Service History Earnings File contains three types of data, taken from three sources of administrative records. For each individual we first have a group of variables which simultaneously describe the individual and define the cell structure of the file. These variables, derived from the DMDC Separatee File ("Loss File"), include: Branch of Service, Years of Service, Education, Grade Level, Year of Separation from the Service (1972-1980), and Military Occupation Category. Each of the variables is categorical; jointly, their values can be combined in 82,944 ways. Each of these possible combinations (e.g., Army veterans of five years service, less than a high school education, pay grade E6 or below, separated in 1974, with an occupation in the combat arms) defines a cell.

Files containing these variables, together with Social Security Numbers, were sent to SSA and IRS to obtain the second group of variables, the annual reported income for each individual. Those agencies matched the income data to the file using the Social Security Number, which was then removed before the merged data were returned to DMDC.

Data from the Social Security Administration included reported W-2 earnings up to the Social Security reporting ceiling for years 1973 to 1981.

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Also, only earnings from Social Security covered employment were reported. From IRS, W-2 earnings were reported up to a confidentiality ceiling of \$150,000, but only for years 1979-1981. In both cases, earnings were only reported for an individual beginning with the year following his or her separation from the Service.

Finally, each record carries a group of cell-specific aggregate variables. The cell-structure variables are common to all observations in that cell. But these variables describe the cell rather than the individual and represent "measurement with error" when applied at the individual level of observation. These variables include the percent distributions of the cell for AFQT category and pay grade, mean AFQT score, mean age and education at last separation, the longest, shortest, and median time in grade, and the sampling fraction for the cell. Where sampling was done (cells of size 25 or greater) these aggregate variables refer to the sample and not to the cell population from which it was drawn.

APPENDIX II: CREATION OF ANALYSIS FILES

This appendix describes the process by which the analysis files (SAS data sets) were created for the four groups used in the analysis. The four groups are:

- . male officer separatees,
- . male officer retirees,
- . male enlisted separatees,
- . male enlisted retirees.

The main steps in the process were:

- . "Raw" data tape was read and desired variables were put into two SAS data sets (one for officers and one for enlisted personnel);
- . additional variables were generated from the "basic" variables. These analytic variables are not group-specific, i.e., these variables are created in an identical manner for each of the two groups;
- . both the officer and enlisted data files were "split" into separatees and retirees thus forming files for the four groups identified above;
- . group-specific variables were created in each of the four files.

A more complete description of the formation of the analysis files follows.

The initial stage in the analysis-file creation process involved reading the "raw" data tape and creating of SAS data sets for officers and enlisted personnel. The following variables were read from the "raw" data tape:

- (1) Service category
- (2) Race/Sex category
- (3) Length of service category
- (4) Education/grade level category
- (5) Year of Separation category
- (6) Military occupation category
- (7) 1979 W-2 wage earnings
- (8) 1980 W-2 wage earnings
- (9) 1981 W-2 wage earnings

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- (10) Mean age at last separation (cell average)
- (11) Mean education at last separation (cell average)
- (12) Median time in grade (cell median)

The second stage generates variables which are not group specific:

(1) Three education variables were created from the mean education at last separation. The variables were education less than 12 years, education greater than or equal to 12 and less than or equal to 15 years, and education greater than 15 years.

(2) A categorical variable for black males was created from the race/sex category.

(3) Median time in grade was converted from months to years.

The officer and enlisted files were next segmented into separatee and retiree subgroups, and observations with an unrealistic mean age (such as less than 18) at last separation were dropped:

- (1) The following groups were formed:

<u>Officers</u>	<u>Enlisted</u>
male separatees	male separatees
male retirees	male retirees

Separatees were defined as those individuals with at least two but no more than 19 years of service (length-of-service category less than 10). Retirees were defined as those with 20 or greater years of service (length-of-service category greater than 9).

(2) Separatee observations with mean age at last separation less than 18, and retiree observations with mean age at last separation less than 37 were dropped.

The next stage of the analysis-file generation process involves creating a number of group-specific variables:

(1) Length of service was recoded from a categorical variable of the year of service in which separation occurred to the number of years of service completed or number of completed years since retirement

eligibility in service. In the separatee files, the recoding was:

<u>Category</u>	<u>Number of Years</u>
1 (LOS 3 & 4)	2.5
2 (LOS 5)	4.0
3 (LOS 6 & 7)	5.5
4 (LOS 8 & 9)	7.5
5 (LOS 10 & 11)	9.5
6 (LOS 12 & 13)	11.5
7 (LOS 14 & 15)	13.5
8 (LOS 16 & 17)	15.5
9 (LOS 18, 19 & 20)	18.0

For retirees, the recoding scheme was:

<u>Category</u>	<u>Number of Years Since Retirement Eligibility</u>
10 (LOS 21)	0.0
11 (LOS 22)	1.0
12 (LOS 23)	2.0
13 (LOS 24 & 25)	3.5
14 (LOS 26 & 27)	5.5
15 (LOS 28, 29, & 30)	8.0
16 (LOS 31 +)	10.0

Thus, for retirees the variable created was the time in service following retirement eligibility.

(2) The time since separation was derived from the year of separation variable. For the regression analysis this calculation differed depending on the wage earnings variable being used (1979, 1980, or 1981). Earnings observations for the first complete year and subsequent years after separation were used (e.g. if years of separation was 1979 then only 1980 and 1981 earnings were used in the analysis).

(3) Age and age squared were derived from the time since separation. Age equals the mean age at last separation plus the time since separation.

(4) A time since separation categorical variable was derived from the time since separation. Thus, creation of this variable involved recoding the time since separation into four classes:

Time Since Separation
(Years)

0 - 1
2 - 3
4 - 6
7 - 9

Time Since Separation
Categorical

1
2
3
4

When the time since separation is defined as a categorical variable in the SAS GLM procedure, this variable enters the regression equation as three dummies with the class associated with 7-9 years since separation being the control group (omitted category).

(5) A pay grade dummy was created from the education/grade level variable.

For officer separatees, the recoding is:

<u>Education/Grade Level Category</u>	<u>Pay Grade</u>
5 (LT Masters, 0-4 & Below)	0
6 (LT Masters, 0-5 & Above)	1
7 (GE Masters, 0-4 & Below)	0
8 (GE Masters, 0-5 & Above)	1

Thus 0-4 and below is used as the control group.

For officer retirees, the recoding is:

<u>Education/Grade Level Category</u>	<u>Pay Grade</u>
5 (LT Masters, 0-4 & Below)	1
6 (LT Masters, 0-5 & Above)	0
7 (GE Masters, 0-4 & Below)	1
8 (GE Masters, 0-5 & Above)	0

Consequently, 0-5 and above was the control group.
For enlisted separatees, the recoding was:

<u>Education/Grade Level Category</u>	<u>Pay Grade</u>
1 (LT High School, E-6 & Below)	0
2 (LT High School, E-7 & Above)	1
3 (GE High School, E-6 & Below)	0
4 (GE High School, E-7 & Above)	1

Thus E-6 and below was the control group.

Finally, for enlisted retirees, the recoding was:

<u>Education/Grade Level Category</u>	<u>Pay Grade</u>
1 (LT High School, E-6 & Below)	1
2 (LT High School, E-7 & Above)	0
3 (GE High School, E-6 & Below)	1
4 (GE High School, E-7 & Above)	0

Consequently, E-7 and above was defined as the control group.

(6) For officer and enlisted separatees, a spline technique was used to form a set of length of service variables:

<u>Years Served</u>	<u>Length of Service</u>			
	<u>LOS 5</u>	<u>LOS 9</u>	<u>LOS 13</u>	<u>LOS 17</u>
1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	1	0	0	0
6	2	0	0	0
7	3	0	0	0
8	4	0	0	0
9	4	1	0	0
10	4	2	0	0
11	4	3	0	0
12	4	4	0	0
13	4	4	1	0
14	4	4	2	0
15	4	4	3	0
16	4	4	4	0
17	4	4	4	1
18	4	4	4	2
19	4	4	4	3
20	4	4	4	4

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This specification allows the different effects of different career lengths' spline variables to be added together. Thus, the earnings of an officer leaving after an eight year career would be reduced or increased (depending on the sign of coefficient) by four times the LOS5 coefficient. For an officer leaving after a nine-year career, the differential would be altered (depending on the coefficients' signs) by four times the LOS5 coefficient plus one times the LOS9 coefficient. This specification constrains the effects of the LOS variables on the earnings differential to be equal at the end points of each LOS category, thus forming a smooth curve.

(7) Adjusted full-time earnings were derived from the wage earnings variable. This derivation first recoded any outlying values of earnings. Earnings less than \$500 were recoded to 0. The earnings value was then adjusted to 1982 dollars using the appropriate Bureau of Labor Statistics Employment Cost Index (ECI) factor:

<u>Year</u>	<u>ECI Factor</u>
1981	1.071
1980	1.179
1979	1.279

Based on information provided by DMDC, full-time equivalent earnings were estimated. The adjustment ratios applied to the ECI-adjusted earnings are:

Officer Separates	$1.75159 - .03208 * AGE + .00035483 * AGE^2$
Officer Retirees	1.16973
Enlisted Separates	$2.28539 - .05351 * AGE + .000581249 * AGE^2$
Enlisted Retirees	1.16973

These ratios were derived from regressions on age of the ratio of average earnings for full-time veterans to average earnings for all veterans in the Census sample.

In order to further select only full-time workers, observations were dropped if the adjusted full-time earnings were less than \$6,000.

(8) Finally, the difference between adjusted full-time earnings and estimated earnings was calculated. Differences were calculated based on a number of Census counterpart groups. Appendix III describes the Census equations used to calculate estimated earnings.

A final variable was added to the data set once the mean value for time in last grade was determined. This variable is the difference between actual time in last grade and the median time in last grade for the group in which the observation falls. This variable, like the age and education variables, provides information about the average for the cell population and thus tends to lessen the effect of these variables for the individual observation.

The creation of the SSA analysis files was similar to the process described above for the IRS analysis files. The major difference is that wage earnings data for the period 1973-1981 were available on the SSA tape. The ECI factors for the additional earnings years are:

<u>Year</u>	<u>ECI Factor</u>
1978	1.378
1977	1.487
1976	1.589
1975	1.701
1974	1.854
1973	1.972

Tables II-1 and II-2 contain the distribution of the IRS (1981 earnings) and Census samples in the different categories for which average earnings are reported in Tables 5-8 in Chapter II.

TABLE II-1

IRS AND CENSUS SAMPLE SIZES FOR TABLES 5 AND 6

All Work Status Groups	IRS		Census Male Veterans Ages 25-45	
	Officers	Enlisted	Officer-Like Occupations	Enlisted Like Occupations
Less than 12 years of education	93	27,102	3,784	21,888
12 to 15 years of education	3,652	54,050	54,122	102,069
Greater than 15 years of education	34,188	44	13,518	38,230
Total	37,933	81,196	71,424	162,187

Full Time Workers Only	IRS		Census Male Veteran Ages 25-45	
	Officers	Enlisted	Officer-Like Occupations	Enlisted-Like Occupations
Less than 12 years of education	74	19,935	2,638	13,668
12 to 15 years of education	3,077	42,870	43,524	79,362
Greater than 15 years of education	28,980	36	10,159	29,055
Total	32,131	62,841	56,321	122,085

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TABLE II-2
 IRS AND CENSUS SAMPLE SIZES FOR TABLES 7 AND 8

All Work Status Groups	IRS		Census Male Veterans Ages 40-60		
	Officers	Enlisted	Officer-Like Occupations	Enlisted Like Occupations	All Occupations
Less than 12 years of education	115	14,635	13,460	56,836	70,246
12 to 15 years of education	10,482	46,196	68,617	93,619	162,236
Greater than 15 years of education	26,685	5	21,280	47,078	68,358
Total	37,282	60,826	103,357	197,533	300,890

Full Time Workers Only	IRS		Census Male Veterans Ages 40-60		
	Officers	Enlisted	Officer-Like Occupations	Enlisted-Like Occupations	All Occupations
Less than 12 years of education	98	11,455	9,196	39,342	48,538
12 to 15 years of education	8,152	36,563	54,153	70,680	124,833
Greater than 15 years of education	20,636	4	15,472	35,426	50,898
Total	28,886	48,022	78,821	145,448	224,269

APPENDIX III: CENSUS DATA SETS

The source and make-up of the Census data sets was described in the body of the report. This appendix describes the subgroups drawn from the Census data and the equations used to calculate the difference between actual retiree and separatee earnings and their imputed earnings.

The regressions presented in the report and the appendices are based on comparisons between full-time workers earning more than \$6,000. Hence, full-time workers earning more than \$6,000 were drawn from the Census. The Census comparison group was further restricted to veterans to ensure comparability with the retired or separated military personnel. However, in Appendix VII, equations based on veterans and non-veterans are presented and compared with the results discussed in the report.

The following equations were used to create the post-service earnings differentials, used as the dependent variables in the regressions. The equations subtract the imputed earnings (based on the Census regressions) from the actual earnings adjusted to 1982 dollars with the Employment Cost Index (ECI).

Differential (male veterans from Census) = $1.071 * 1981 \text{ earnings} - [1.279 * (-5516.103 + 1471.896 * \text{AGE} - 14.265 * \text{AGE}^2 - 4023.693 * \text{BLACK} - 12284.598 * \text{EDLT12} - 8510.971 * \text{ED1215})]$.

Differential (all males from Census) = $1.071 * 1981 \text{ earnings} - [1.279 * (-3575.390 + 1332.602 * \text{AGE} - 12.923 * \text{AGE}^2 - 3701.048 * \text{BLACK} - 11163.586 * \text{EDLT12} - 6875.967 * \text{ED1215})]$.

Differential (male non-veterans from Census) = $1.071 * 1981 \text{ earnings} - [1.279 * (-5367.543 + 1403.813 * \text{AGE} - 14.286 * \text{AGE}^2 - 3466.655 * \text{BLACK} - 10117.103 * \text{EDLT12} - 5614.550 * \text{ED1215})]$.

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Where:

AGE = age,
AGE2 = age squared,
BLACK = black,
EDLT12 = less than 12 years of education,
ED1215 = between 12 and 15 years of education
inclusive,
1.071 = ECI to convert 1981 earnings to 1982
dollars,
1.279 = ECI to convert 1979 Census earnings to
1982 dollars.

In addition, a number of differentials were estimated based on occupational categories. Individuals in officer or enlisted-like occupations were selected from the Census data base to form appropriate comparison groups. Thus retirees or separatees could be compared to veterans in occupations similar to those the former military personnel were employed in while in military service.

The following equations were used to calculate the 1981 post-service earnings differentials for occupations. See Chapter IV for a discussion of the occupation matching process. The equations are based on Census male veterans working full time and earning greater than \$6,000. EARNECI equals the 1981 ECI inflator times 1981 earnings.

Enlisted Occupations:

Differential (male veterans - electronics,
communications, intelligence)

$$= \text{EARNECI} - 1.279 * (-9294.978 + 1490.683 * \text{AGE} - 14.893 * \text{AGE}2 - 1985.703 * \text{BLACK} - 6886.344 * \text{EDLT12} - 4215.266 * \text{ED1215});$$

Differential (male veterans - medical & dental)

$$= \text{EARNECI} - 1.279 * (-10106.308 + 1455.863 * \text{AGE} - 14.766 * \text{AGE}2 - 2134.033 * \text{BLACK} - 10859.160 * \text{EDLT12} - 6595.389 * \text{ED1215});$$

APPENDIX Q

Differential (male veterans - administration)

= EARNECI -1.279 * (-8690.858 + 1575.252 * AGE -15.299 * AGE2
- 3921.564 * BLACK -13871.339 * EDLT12 -10447.789 * ED1215);

Officer Occupations:

Differential (male veterans - aviation)

= EARNECI -1.279 * (-100371.000 + 5859.118 * AGE -56.010 * AGE2
-13407.667 * BLACK - 14041.732 * EDLT12 - 6128.439 * ED1215);

Differential (male veterans - scientists & engineering)

= EARNECI -1.279 * (-12370.091 + 1664.306 * AGE -15.442 * AGE2
- 2646.509 * BLACK -9202.925 * EDLT12 - 6041.282 * ED1215);

Differential (male veterans - administration)

= EARNECI -1.279 * (-6233.024 + 1469.985 * AGE -13.779 *
AGE2 - 4542.020 * BLACK -9498.344 * EDLT12 - 5854.049
* ED1215);

Differential (male veterans - medical & dental)

= EARNECI -1.279 * (-42046.148 + 3959.082 * AGE -39.846 * AGE2
-3858.240 * BLACK - 30118.121 * EDLT12 - 29377.761 * ED1215);

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APPENDIX IV: AGE - EARNINGS PLOTS

This appendix contains a description of our estimate of the 75th percentile of the Census earnings and the computation of the Basic Military Compensation used in the age-earnings profiles. Also included are additional age-earnings profiles based on the regression results presented in the body of the report.

The estimate for the 75th percentile was calculated using the following procedure. Using the 75th and 50th percentiles as calculated from the 1977 Current Population Survey and reported in Cooper's earlier study^{1/}, the ratio of the 75th percentile earnings to the 50th percentile earnings was estimated for officer and enlisted personnel civilian comparison groups (different education levels). The ratios used, given below, were a constant for the enlisted personnel (high school graduates) and an increasing linear function of age for the officer comparison group (college graduates):

Ratio for enlisted personnel = 1.25
Ratio for officers = $1.20 + .006 (\text{Age} - 25)$

These ratios were then used to inflate the mean Census earnings from our sample. The estimate for the 75th percentile derived in the above fashion is presented for rough comparison purposes only and is not used in any of the analytical work or regressions presented in this report.

The Basic Military Compensation (BMC) and the retirement pay were calculated using the following procedure. Service strength by length of service (LOS) and pay grade for officers and enlisted personnel was combined with base pay per month, basic allowance for quarters (BAQ), basic allowance for subsistence (BAS), and the tax advantage by LOS and pay grade, to get a weighted average BMC for fiscal 1982 for each year of service. Thus for each LOS, the sum of 1982 yearly base pay, BAQ, BAS, and tax advantage for each grade

^{1/} Cooper, R., Op. Cit., pp. 40-43. These percentiles were derived.

was multiplied by the 1982 force strength from all four services in that grade, and the sum for all pay grades was divided by the total force strength for that LOS, giving for each LOS a weighted average BMC. Thus the BMC used in our profiles reflects the actual distribution of experience and pay grades within the military for the fiscal year 1982, and has not had personal characteristics (such as education) directly controlled for.

The retirement pay was calculated in the same way, using a weighted (by strength and grade) average of yearly base pay to get base pay by LOS. Then the formula given in the text was used, where retirement pay equals base pay (per year) times LOS times .025 for LOS greater than 20 years, with a maximum of 75% of base pay at separation.

The plots presented below are based on the same regression results as the profiles in the body of the paper. That is, earnings for non-black (except where noted), high school (enlisted) or college (officer) educated (except where noted) retirees and separatees working full time and earning more than \$6,000 are plotted against age. Also plotted are basic military compensation (BMC), civilian earnings for the mean and 75th percentile, and for retirees, earnings plus retirement pay.

Officer Plots

The following plots of officer post-service earnings are included:

- 1) Officers with college degrees separated after 4 years
- 2) Officers with college degrees separated after 8 years
- 3) Officers with college degrees separated after 12 years
- 4) Officers with college degrees separated after 16 years
- 5) Officers with college degrees separated after 20 years

- 6) Officers with college degrees separated after 25 years
- 7) Officers with college degrees separated after 30 years
- 8) Officers with college degrees separated after 4, 8, 12, and 16 years overlaid
- 9) Officers with college degrees separated after 20, 25, and 30 years overlaid
- 10) Officers with college degrees retired after 20 years compared to separatees

This plot shows the earnings curve (PSESEP) estimated by using the characteristics of a retiree (20 years LOS) in the separatee regression. The pay grade effect is calculated from the retiree, rather than the separatee, equation.

- 11) Black officers with college degrees separated after 8 years
- 12) Black officers with college degrees separated after 20 years
- 13) Officers with less than a high-school degree separated after 8 years
- 14) Officers with less than a high-school degree separated after 20 years
- 15) Officers with a high-school degree separated from the service after 8 years
- 16) Officers with a high-school degree separated from the service after 20 years

For the plots listed above separatees and retirees are compared to full-time, male veterans earning more than \$6,000.

- 17) Officer aviators separated after 8 years
- 18) Officer aviators separated after 20 years
- 19) Officer scientists and engineers separated after 8 years
- 20) Officer scientists and engineers separated after 20 years
- 21) Officer medical and dental professionals separated after 8 years
- 22) Officer medical and dental professionals separated after 20 years
- 23) Officer administrators separated after 8 years
- 24) Officer administrators separated after 20 years

For plots 17 to 24, separatees and retirees are compared to full-time, male veterans earning more than \$6,000 in each respective profession.

Enlisted Personnel Plots

The following plots can be found in Figures 25 to 46 below:

- 25) Enlisted personnel with 12 to 15 years of education separated after 4 years
- 26) Enlisted personnel with 12 to 15 years of education separated after 8 years
- 27) Enlisted personnel with 12 to 15 years of education separated after 12 years
- 28) Enlisted personnel with 12 to 15 years of education separated after 16 years
- 29) Enlisted personnel with 12 to 15 years of education separated after 20 years

- 30) Enlisted personnel with 12 to 15 years of education separated after 25 years
- 31) Enlisted personnel with 12 to 15 years of education separated after 30 years
- 32) Enlisted personnel with 12 to 15 years of education separated after 4, 8, 12 and 16 years overlaid
- 33) Enlisted personnel with 12 to 15 years of education separated after 20, 25 and 30 years overlaid
- 34) Enlisted personnel with 12 to 15 years of education retired after 20 years compared to separatees

This plot shows the earnings curve (PSESEP) estimated by using the characteristics of a retiree (20 years LOS) in the separatee regression. The pay grade effect is calculated from the retiree, rather than the separatee, equation.

- 35) Black enlisted personnel with 12 to 15 years of education separated after 8 years
- 36) Black enlisted personnel with 12 to 15 years of education separated after 20 years
- 37) Enlisted personnel with less than a high-school degree separated after 8 years
- 38) Enlisted personnel with less than a high-school degree separated after 20 years
- 39) Enlisted personnel with a college degree separated after 8 years
- 40) Enlisted personnel with a college degree separated after 20 years

For the enlisted personnel plots listed above, separatees and retirees are compared to full-time, male veterans earning more than \$6,000.

- 41) Enlisted personnel technicians separated after 8 years
- 42) Enlisted personnel technicians separated after 20 years
- 43) Enlisted personnel medical and dental workers separated after 8 years
- 44) Enlisted personnel medical and dental workers separated after 20 years
- 45) Enlisted personnel administrative workers separated after 8 years
- 46) Enlisted personnel administrative workers separated after 20 years

For plots 41 to 46 above, separatees and retirees are compared to full-time, male veterans earning more than \$6,000 in each respective occupation.

The key below provides a description of the labels used on the plots:

BMC: Basic Military Compensation.

Census: Mean earnings for Census sample.

Census 75: estimated 75th percentile of earnings for the Census sample.

Earn 4: Mean earnings for officers or enlisted personnel separated after 4 years of service.

Earn 8: Mean earnings for officers or enlisted personnel separated after 8 years of service.

Earn 12: Mean earnings for officers or enlisted personnel separated after 12 years of service.

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Earn 20: mean earnings for officers or enlisted personnel retired after 20 years of service.

Earn 25: Mean earnings for officers or enlisted personnel retired after 25 years of service.

Earn 30: Mean earnings for officers or enlisted personnel retired after 30 years of service.

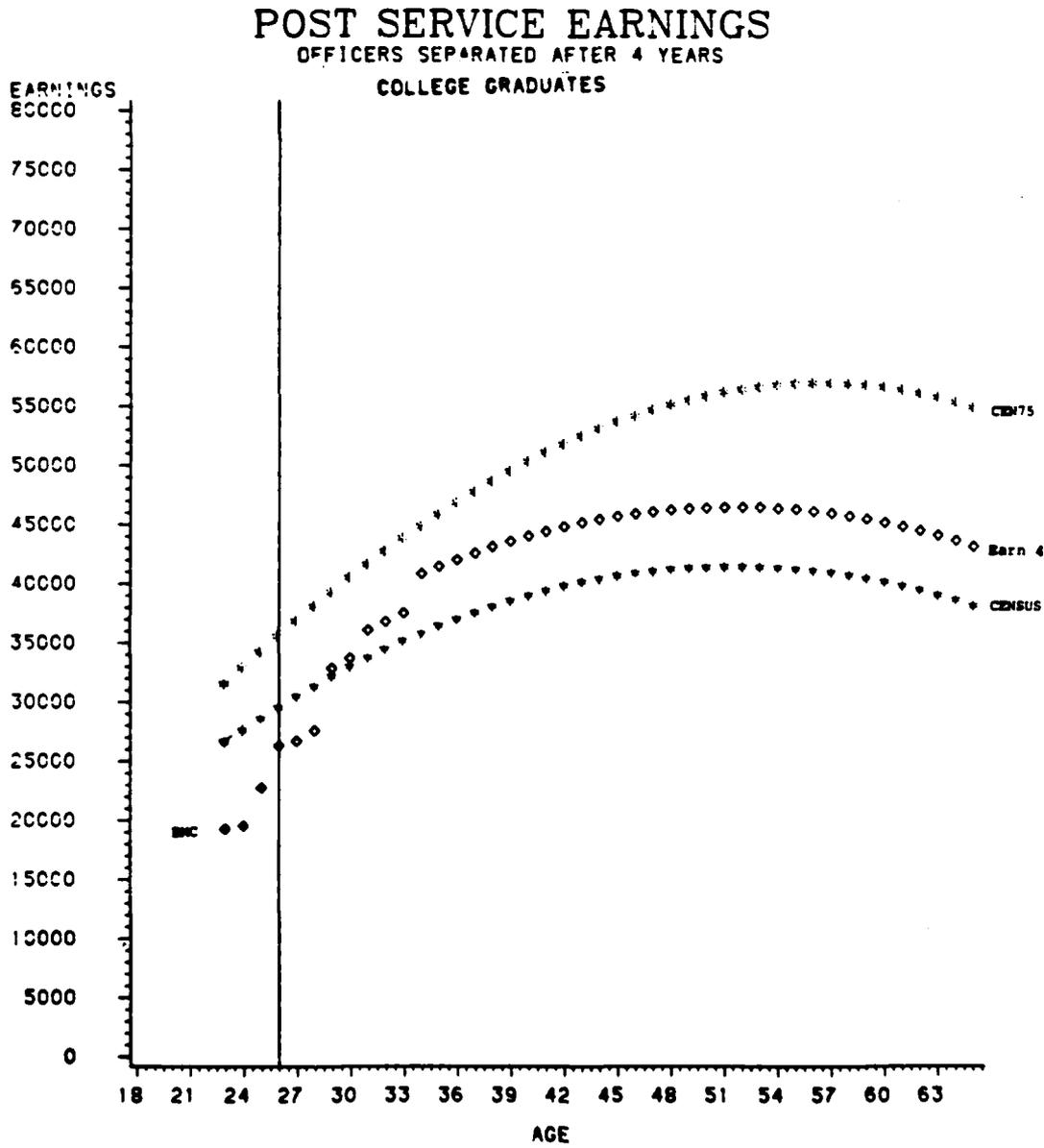
ERP: Mean earnings plus retirement pay for retirees.

PSESEP: Estimated earnings using retiree characteristics in the separate equation.

It should be noted that the post-service earnings curves as shown on these plots have the same shape as the Census curves for ages greater than seven years after separation from the military. This is because we have assumed no change in the earnings differential beyond that point as we have no observations in our IRS sample for times since separation longer than nine years.

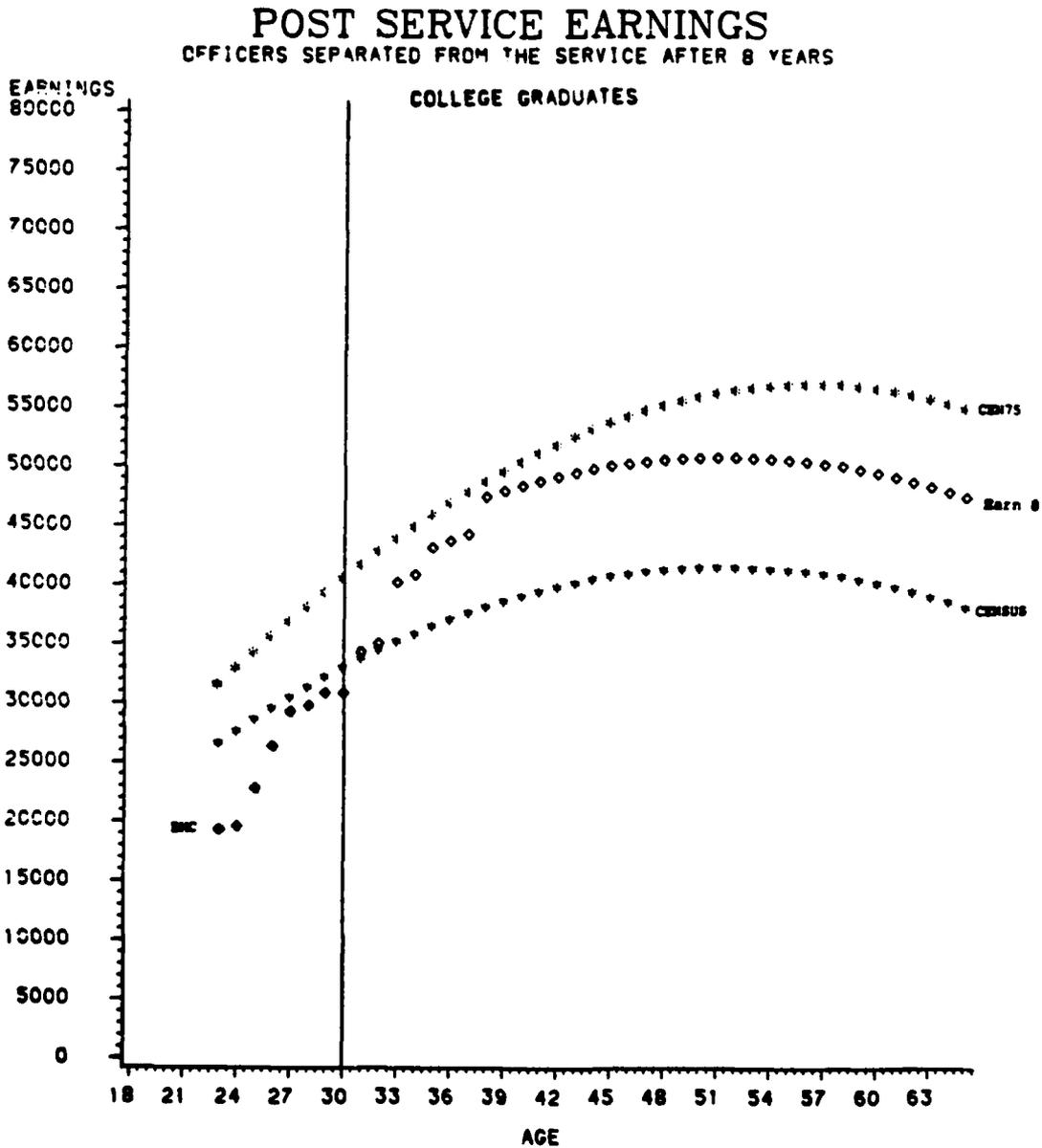
APPENDIX Q

Figure 1



APPENDIX Q

Figure 2



APPENDIX Q

Figure 3

POST SERVICE EARNINGS

OFFICERS SEPARATED FROM THE SERVICE AFTER 12 YEARS

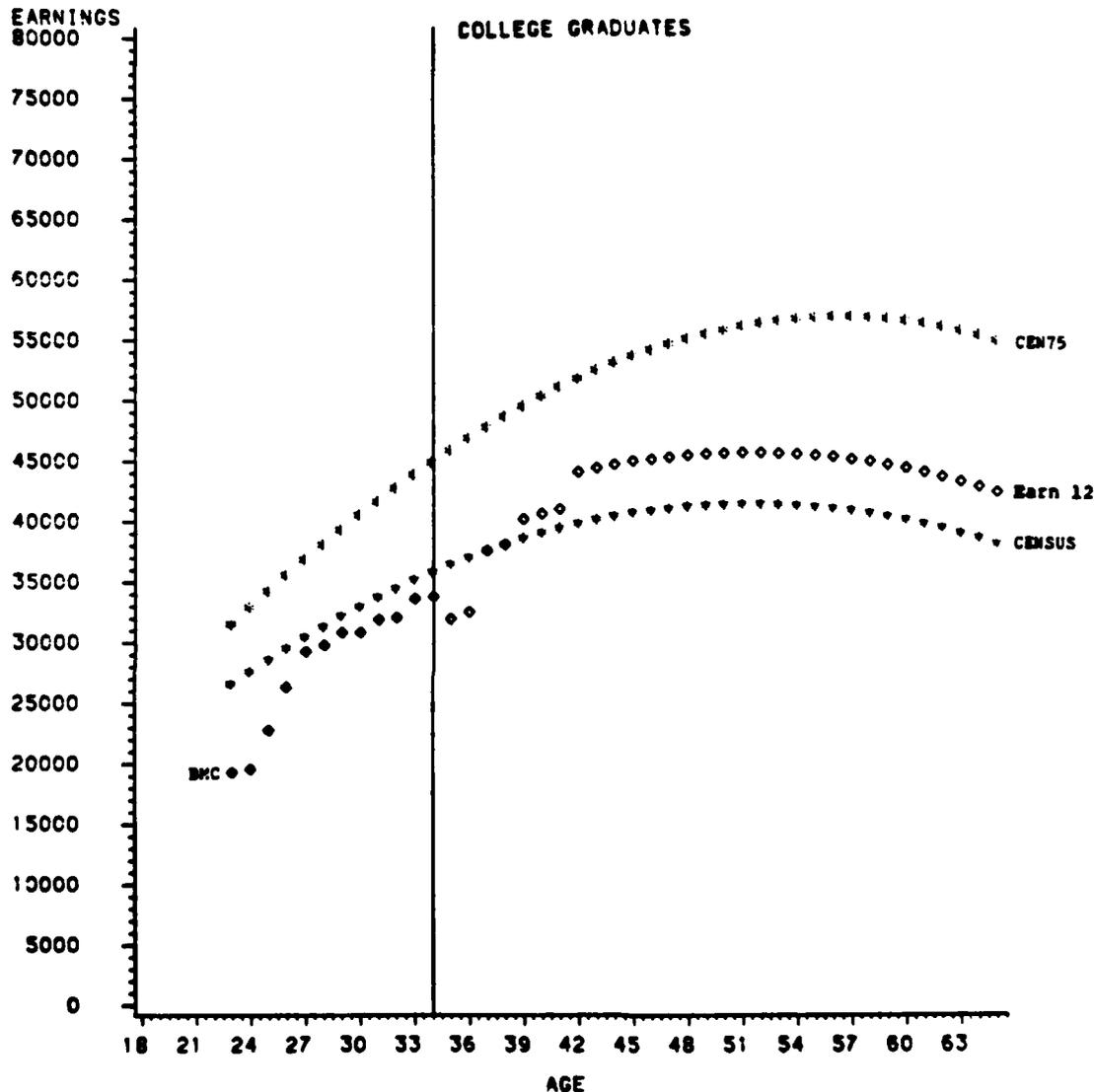


Figure 4

POST SERVICE EARNINGS

OFFICERS SEPARATED FROM THE SERVICE AFTER 16 YEARS

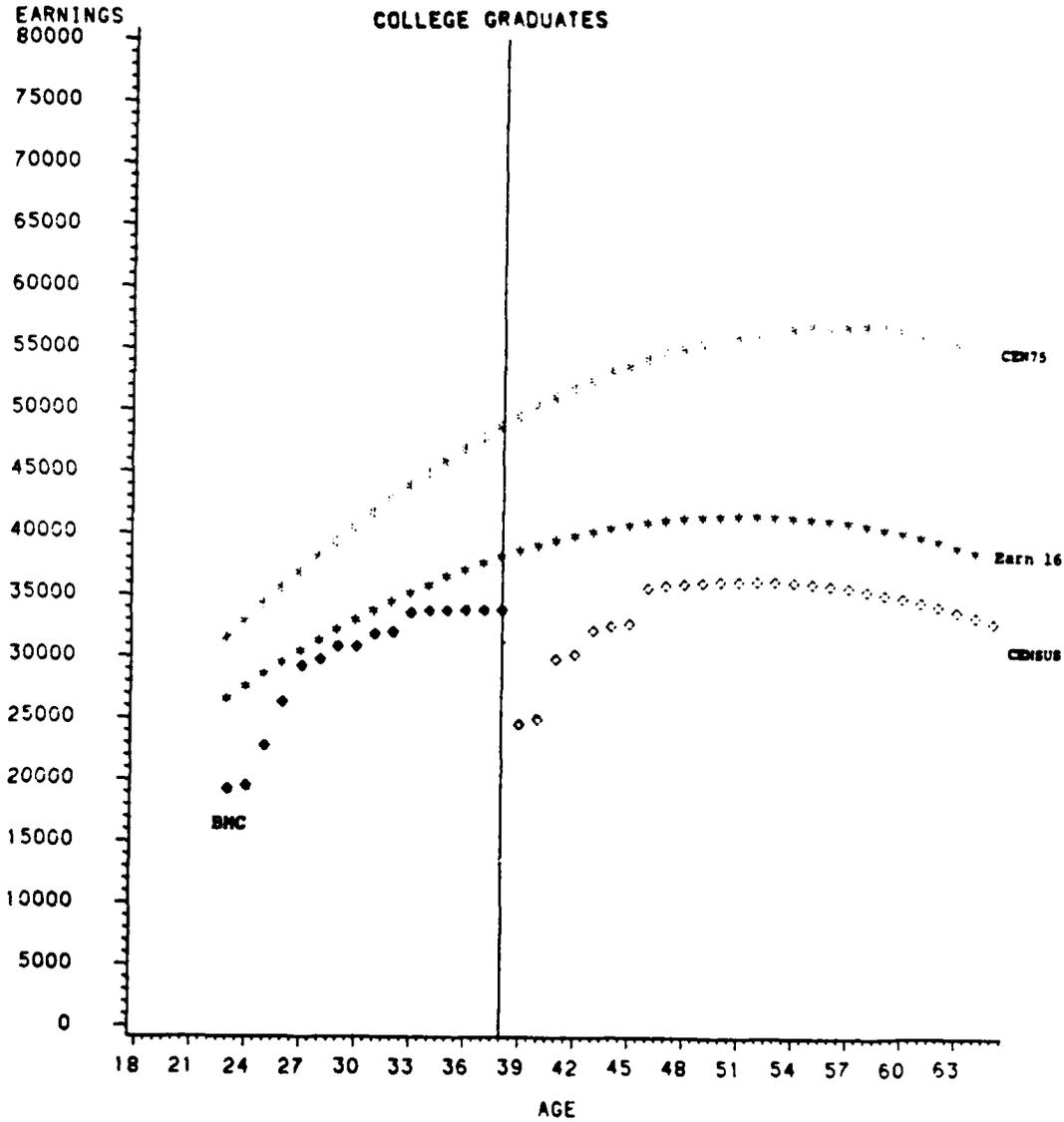


Figure 5

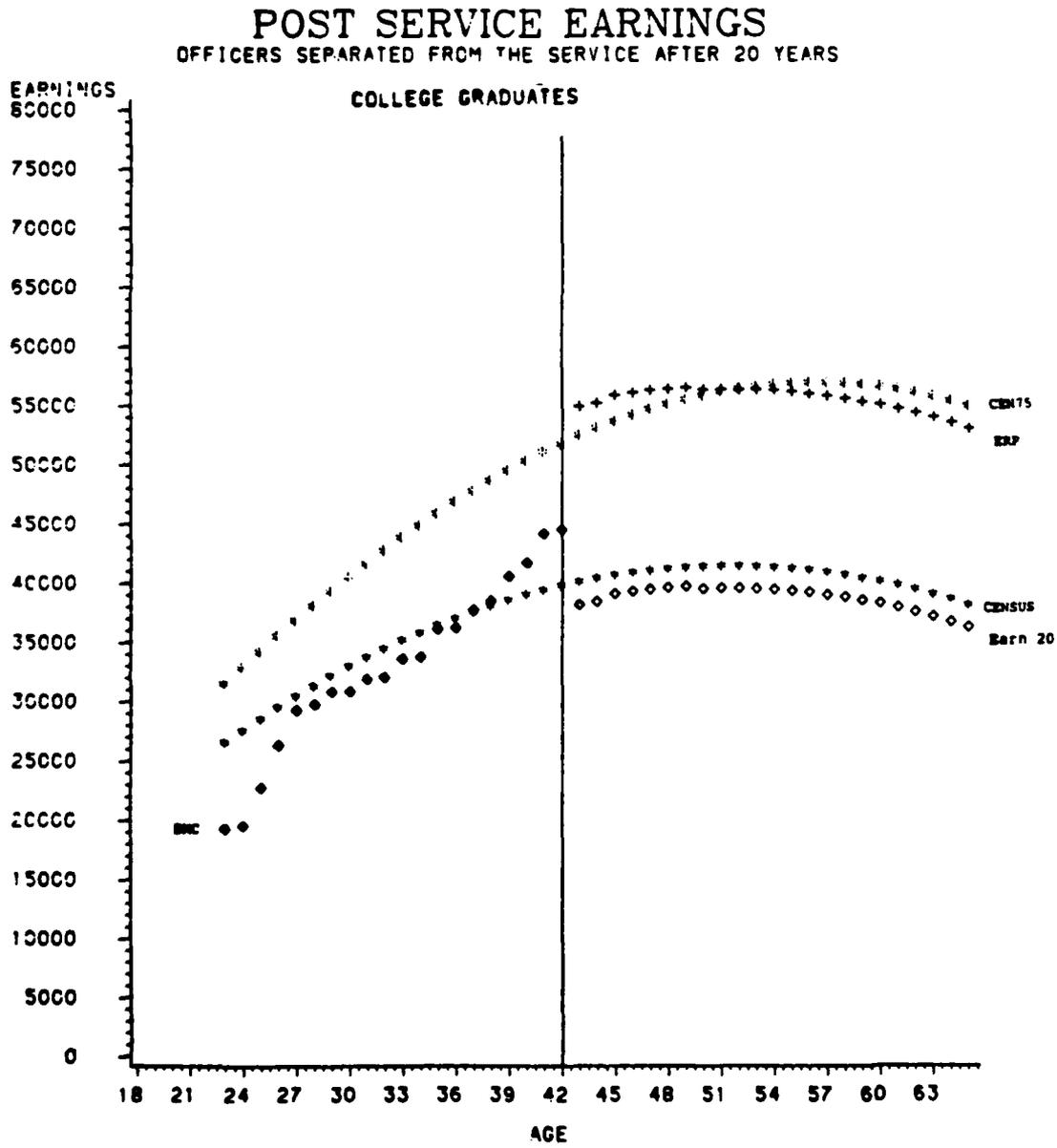


Figure 6

POST SERVICE EARNINGS OFFICERS SEPARATED FROM THE SERVICE AFTER 25 YEARS

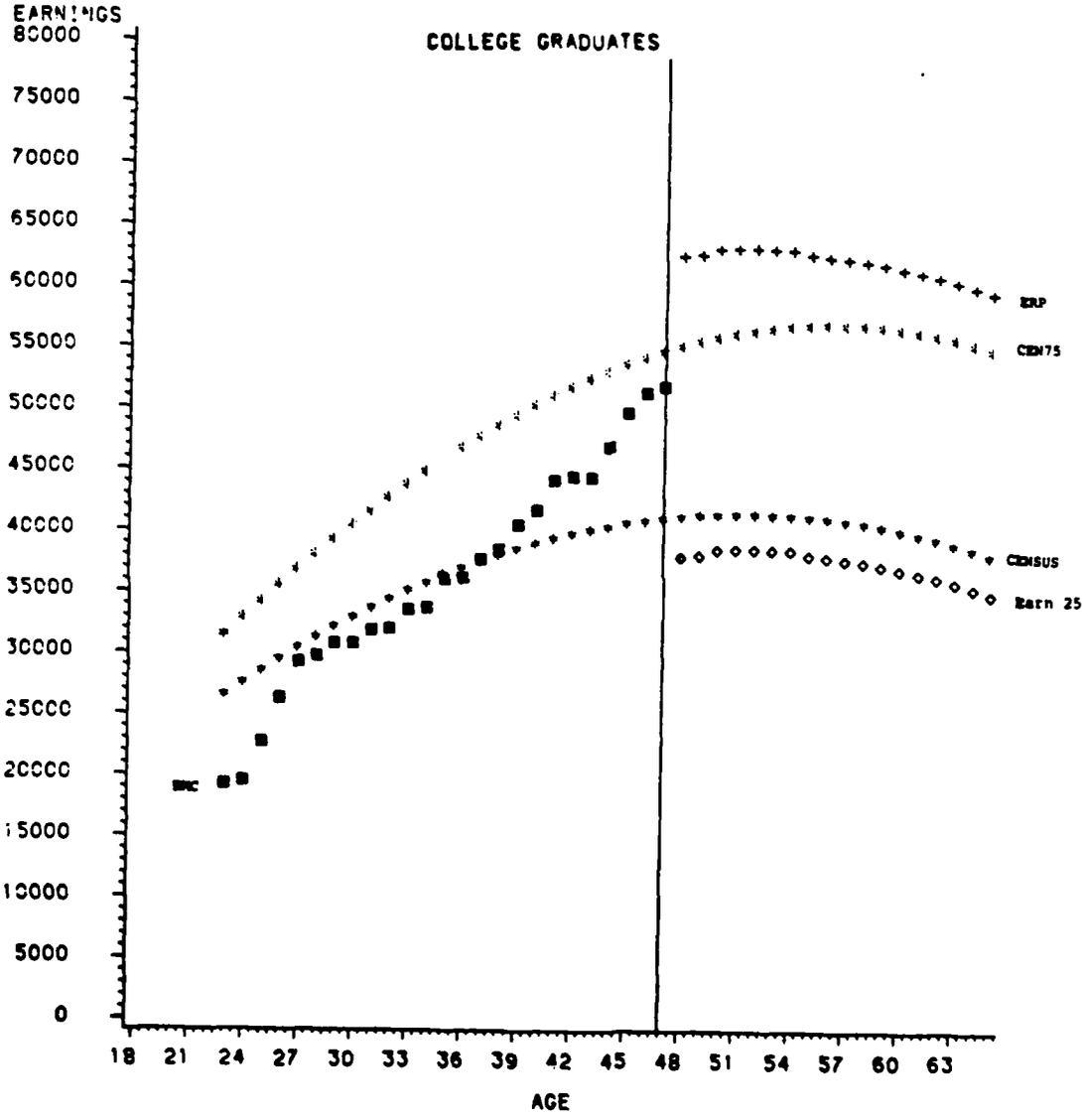


Figure 7

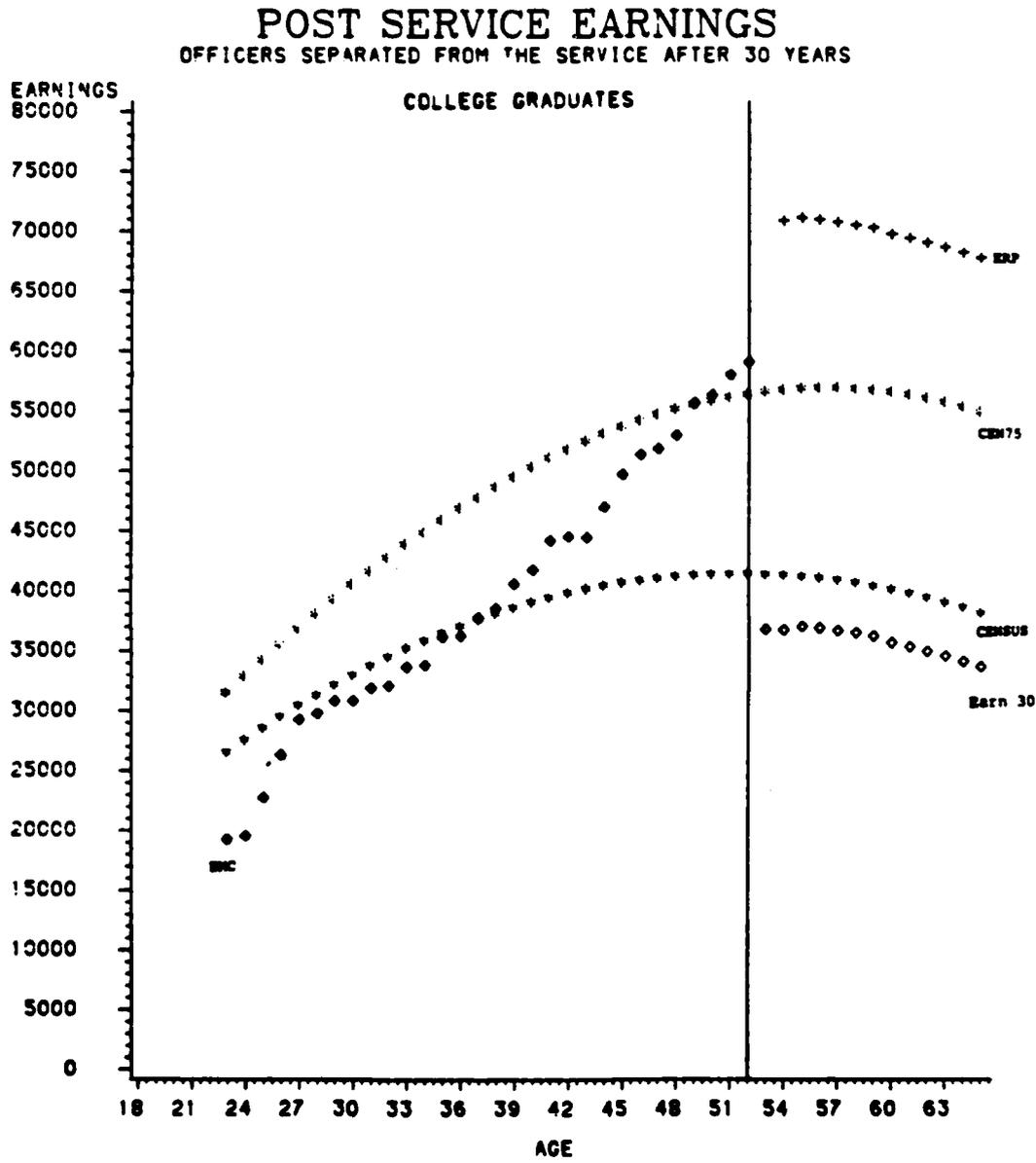


Figure 9

POST SERVICE EARNINGS

OFFICER RETIREES
COLLEGE GRADUATES

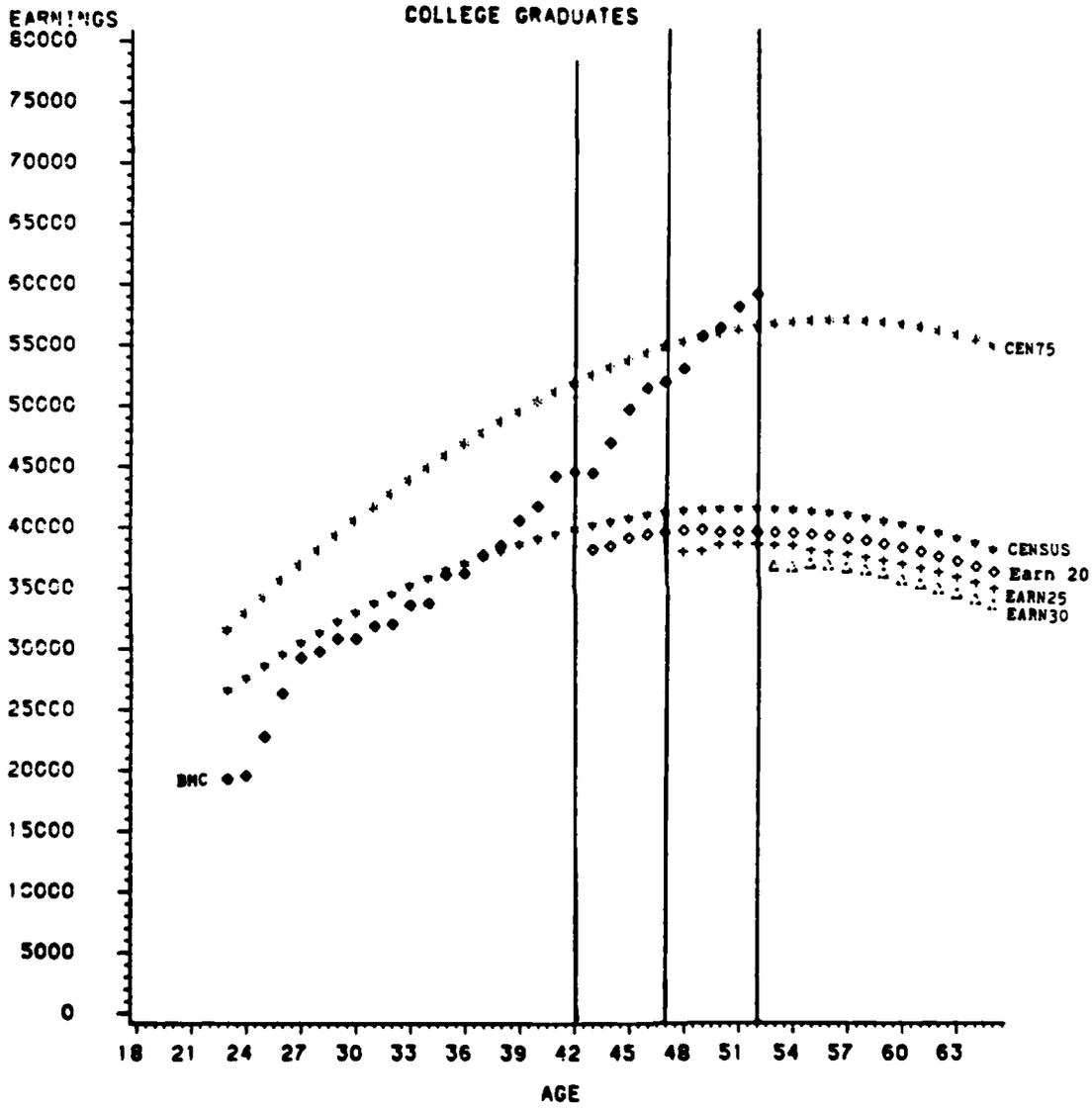


Figure 10

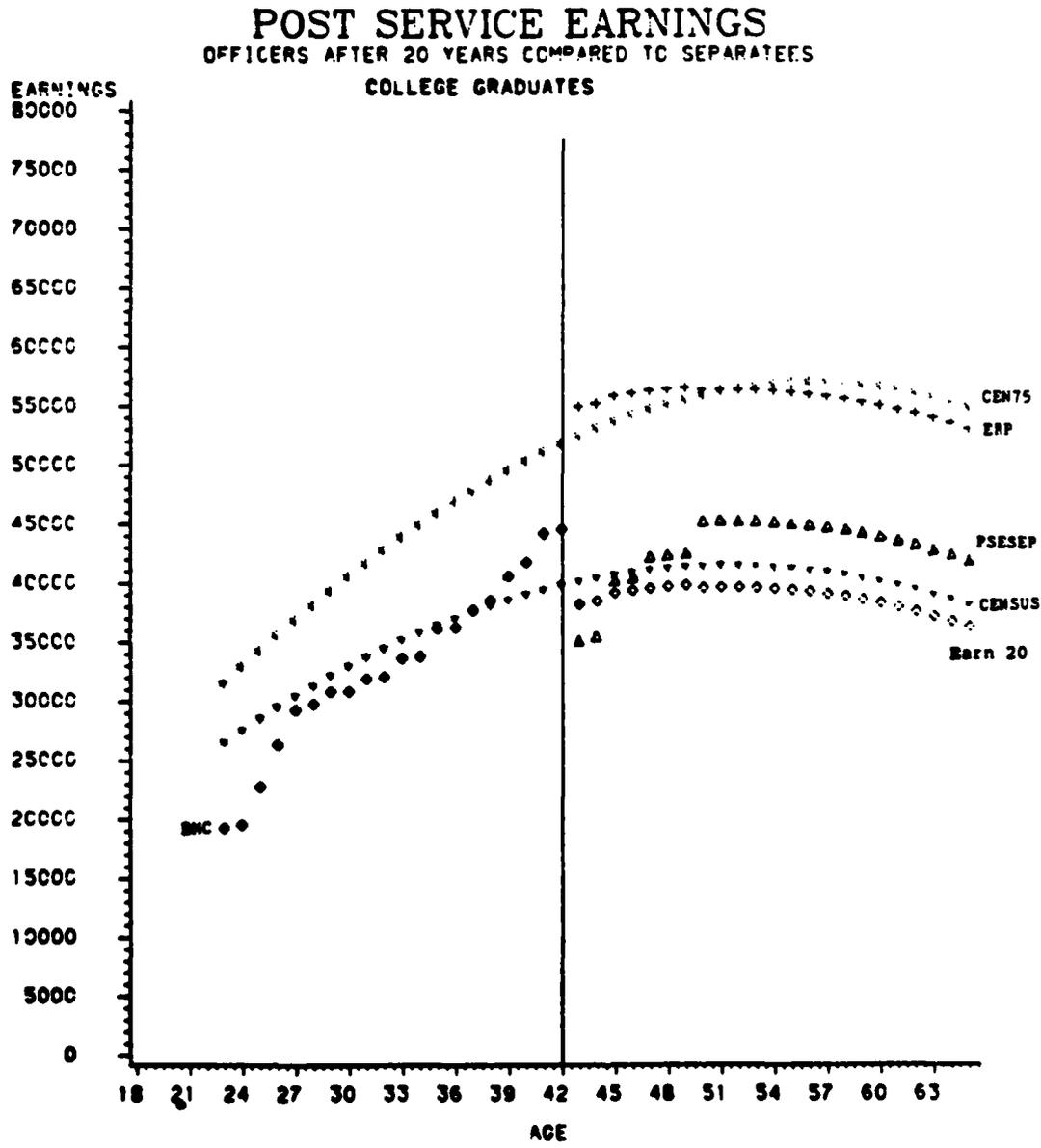


Figure 11

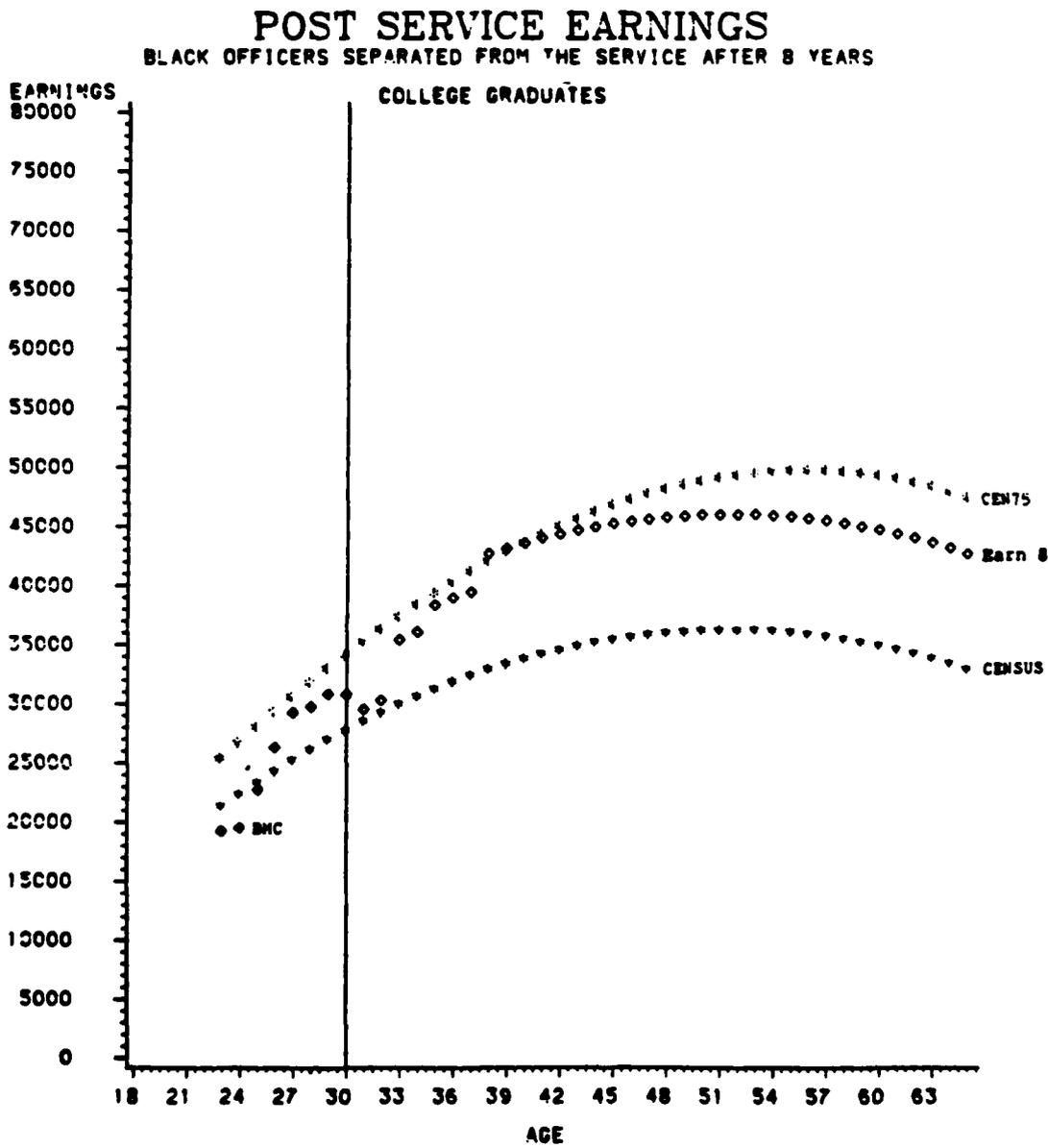


Figure 12

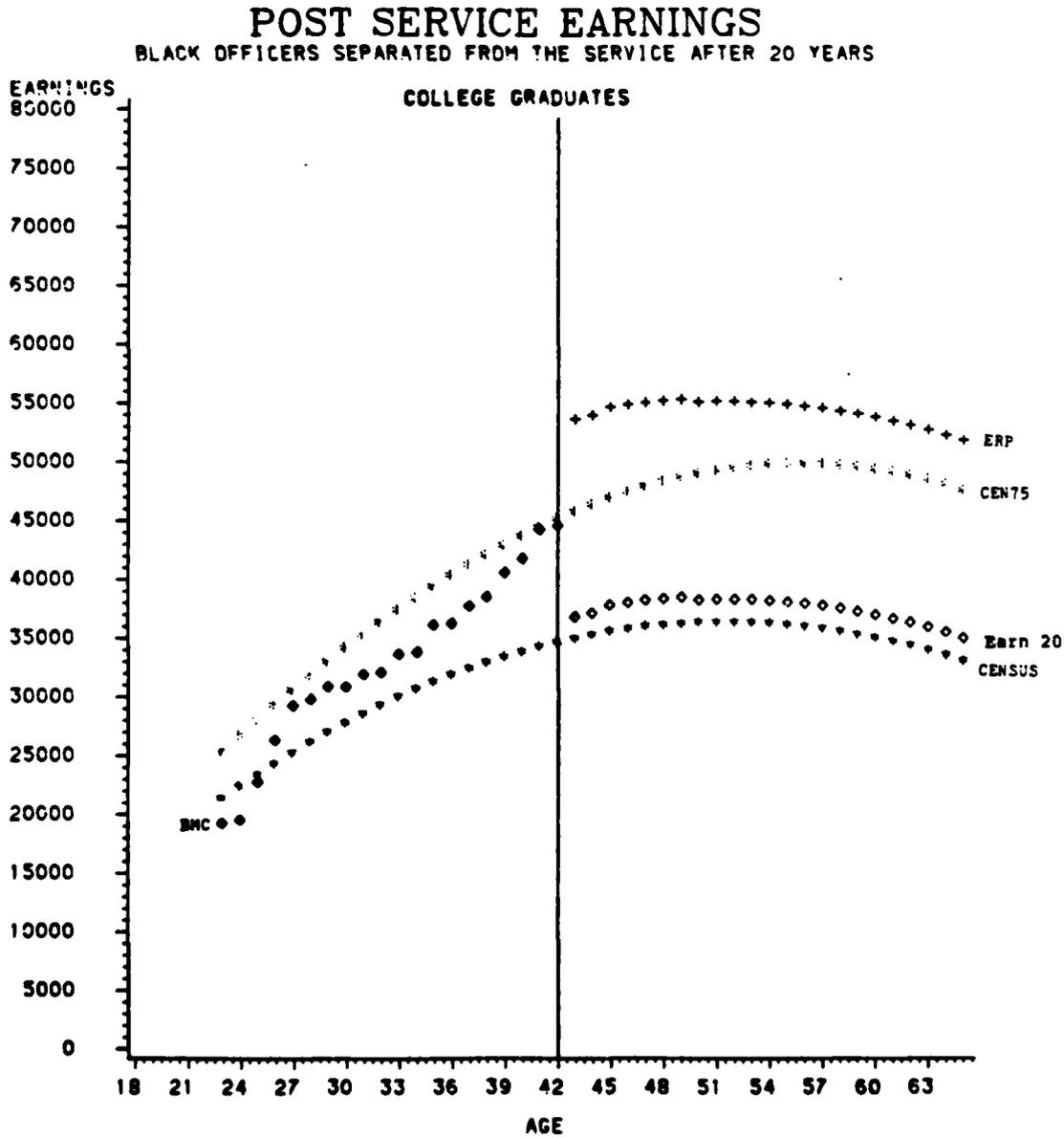


Figure 13

POST SERVICE EARNINGS OFFICERS SEPARATED FROM THE SERVICE AFTER 8 YEARS LESS THAN HIGH SCHOOL DEGREE

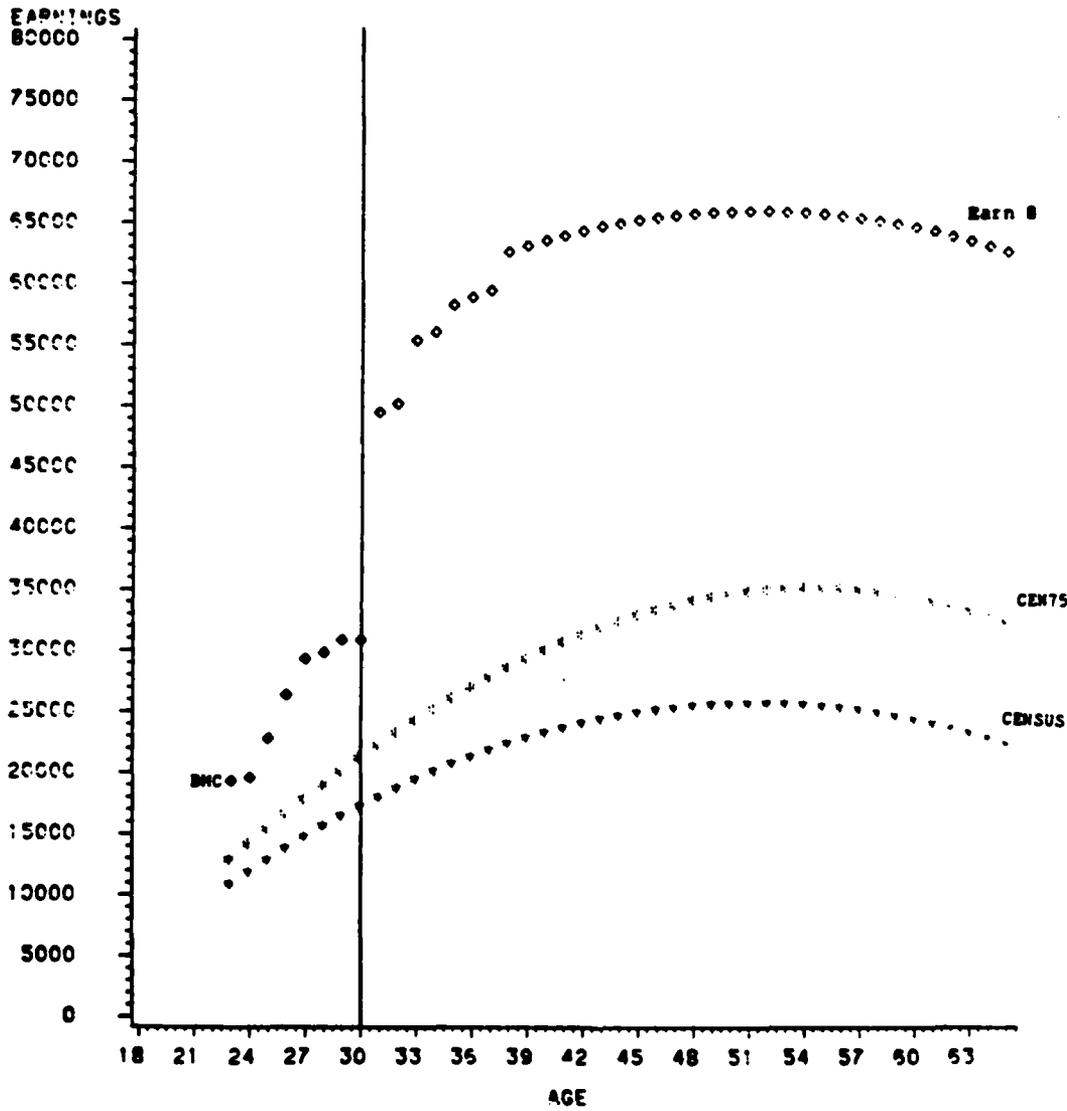


Figure 14

POST SERVICE EARNINGS OFFICERS SEPARATED FROM THE SERVICE AFTER 20 YEARS LESS THAN HIGH SCHOOL DEGREE

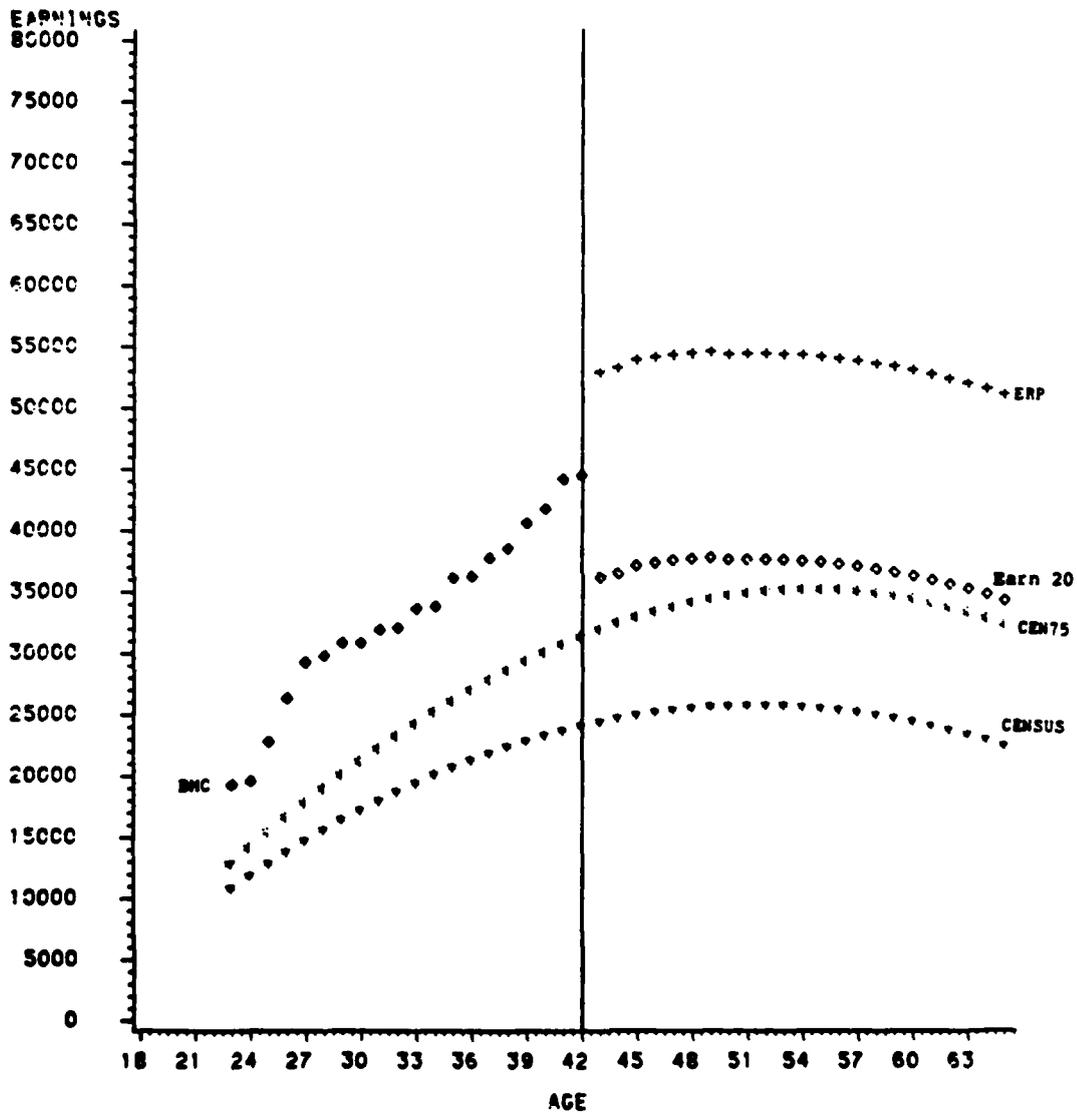
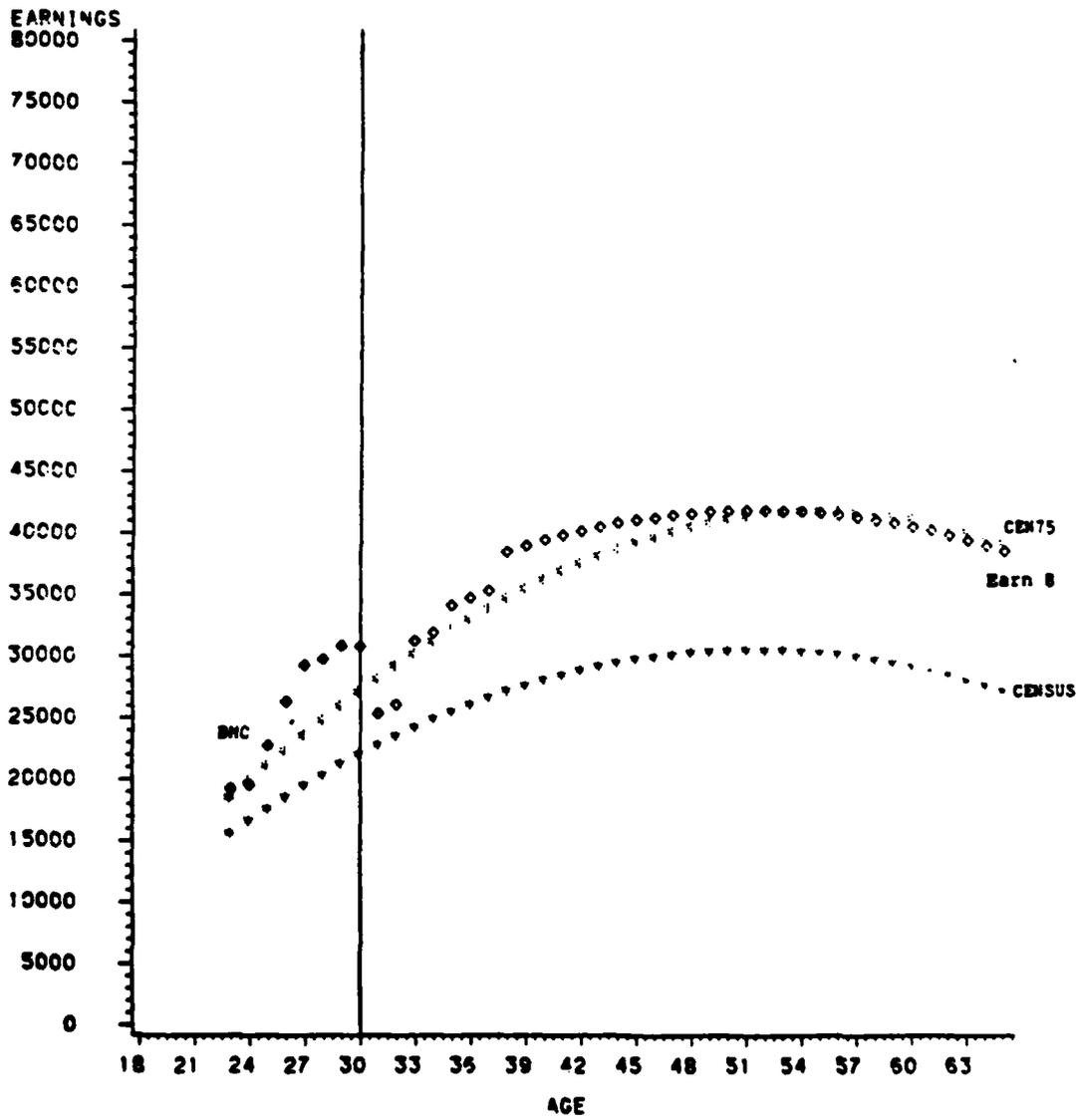


Figure 15

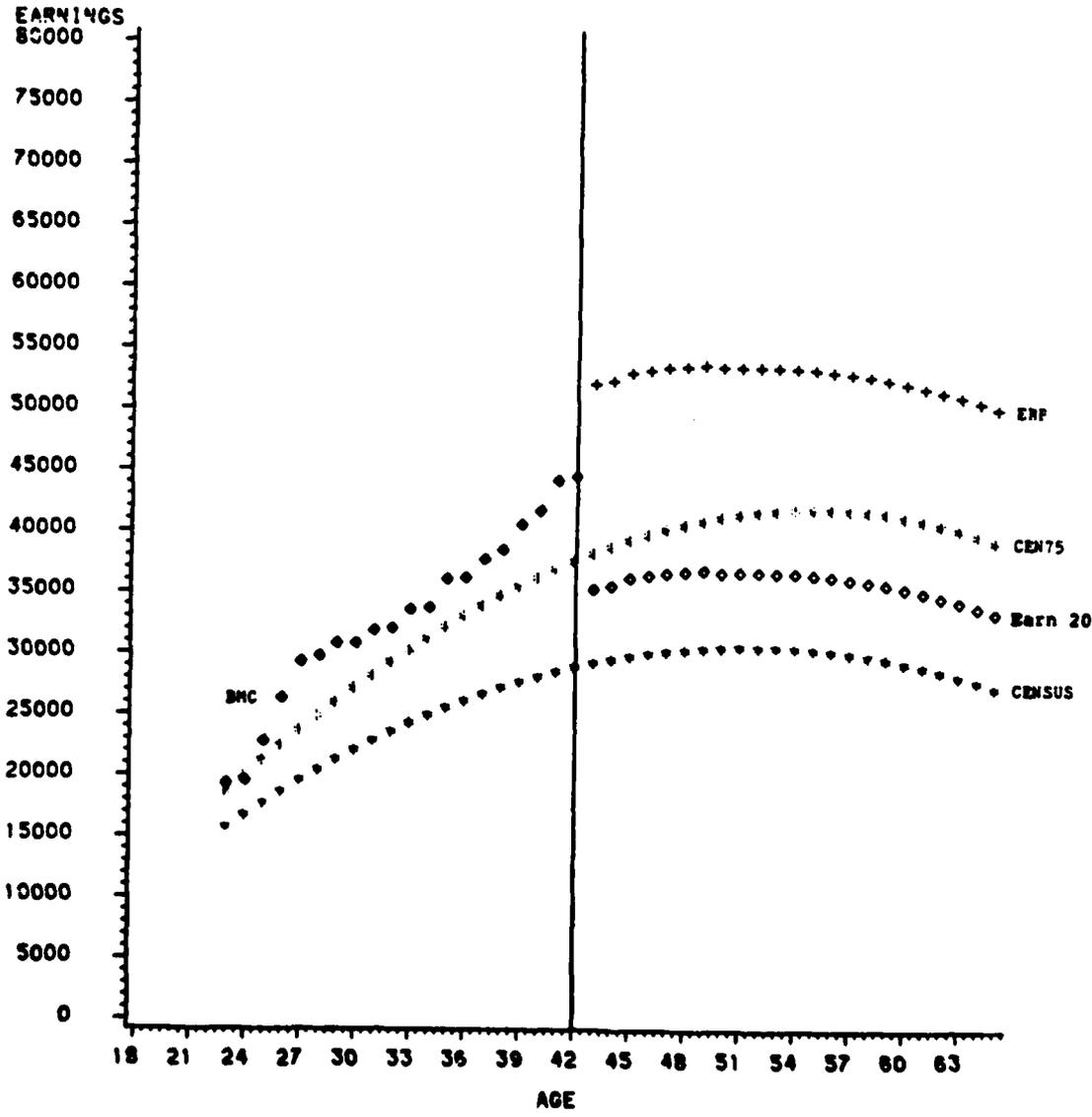
POST SERVICE EARNINGS OFFICERS SEPARATED FROM THE SERVICE AFTER 8 YEARS HIGH SCHOOL GRADUATES



APPENDIX Q

Figure 16

POST SERVICE EARNINGS OFFICERS SEPARATED FROM THE SERVICE AFTER 20 YEARS HIGH SCHOOL GRADUATES



APPENDIX Q

Figure 17

POST SERVICE EARNINGS

AVIATORS SEPARATED FROM THE SERVICE AFTER 8 YEARS

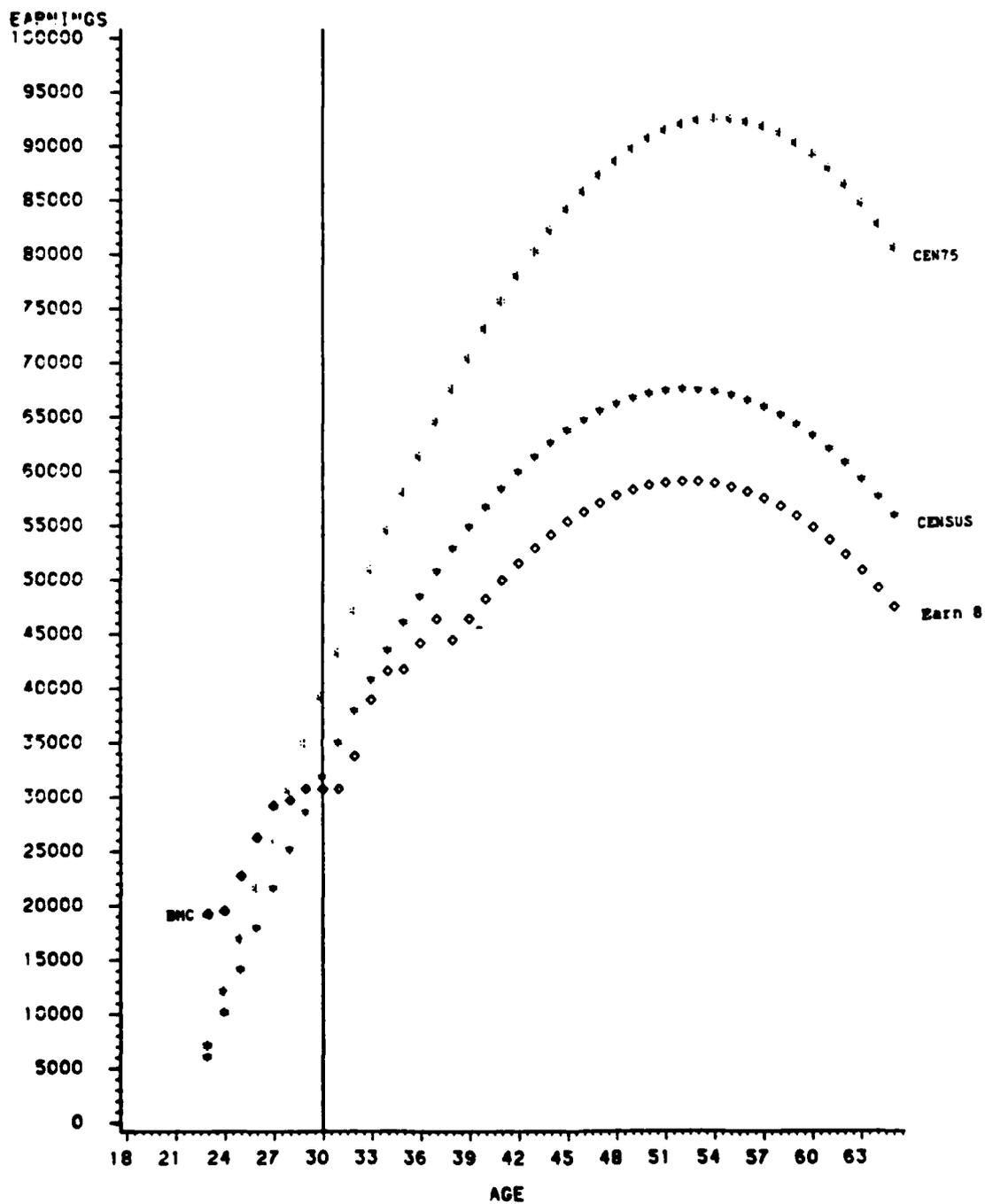


Figure 18

POST SERVICE EARNINGS

AVIATORS SEPARATED FROM THE SERVICE AFTER 20 YEARS

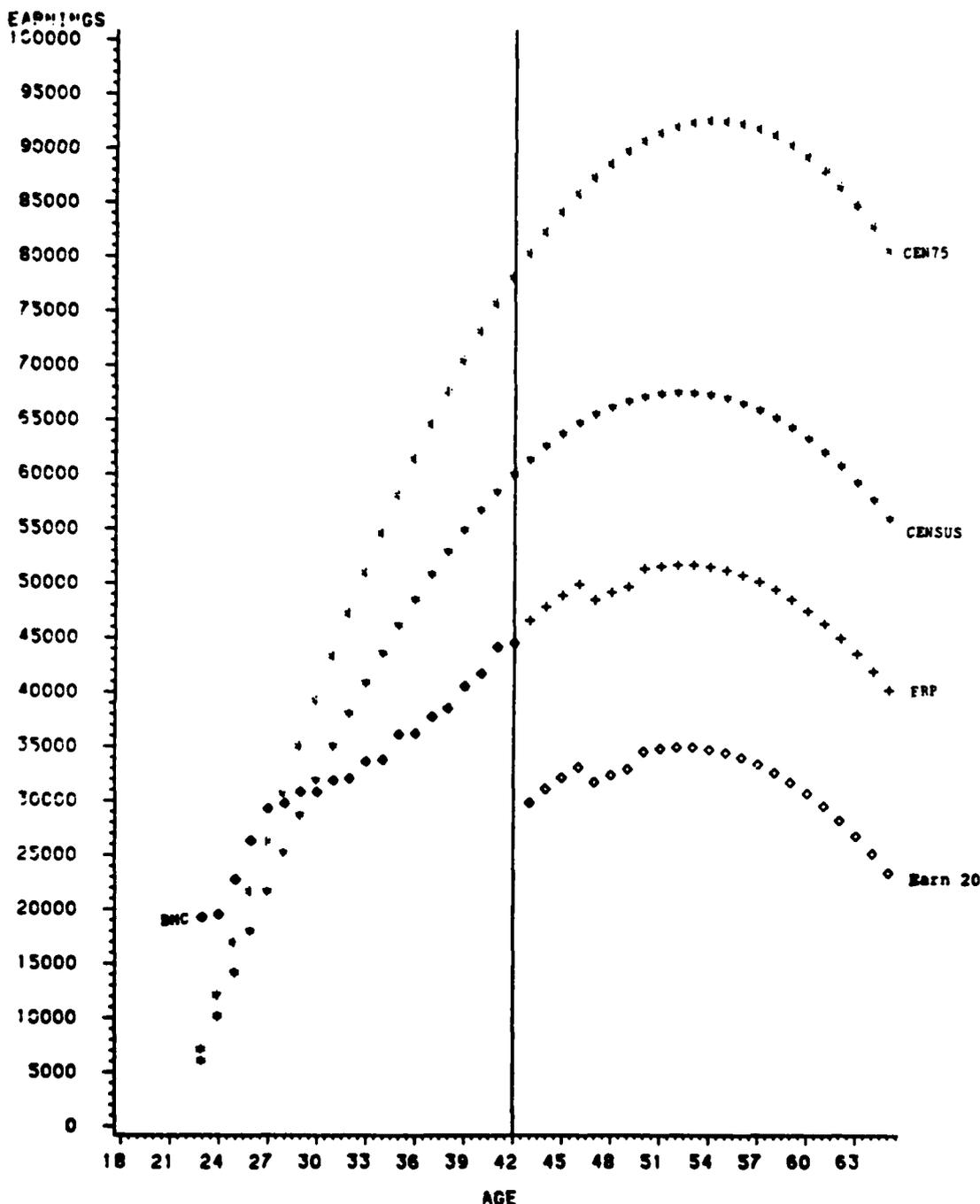


Figure 19

POST SERVICE EARNINGS S&E SEPARATED FROM THE SERVICE AFTER 8 YEARS

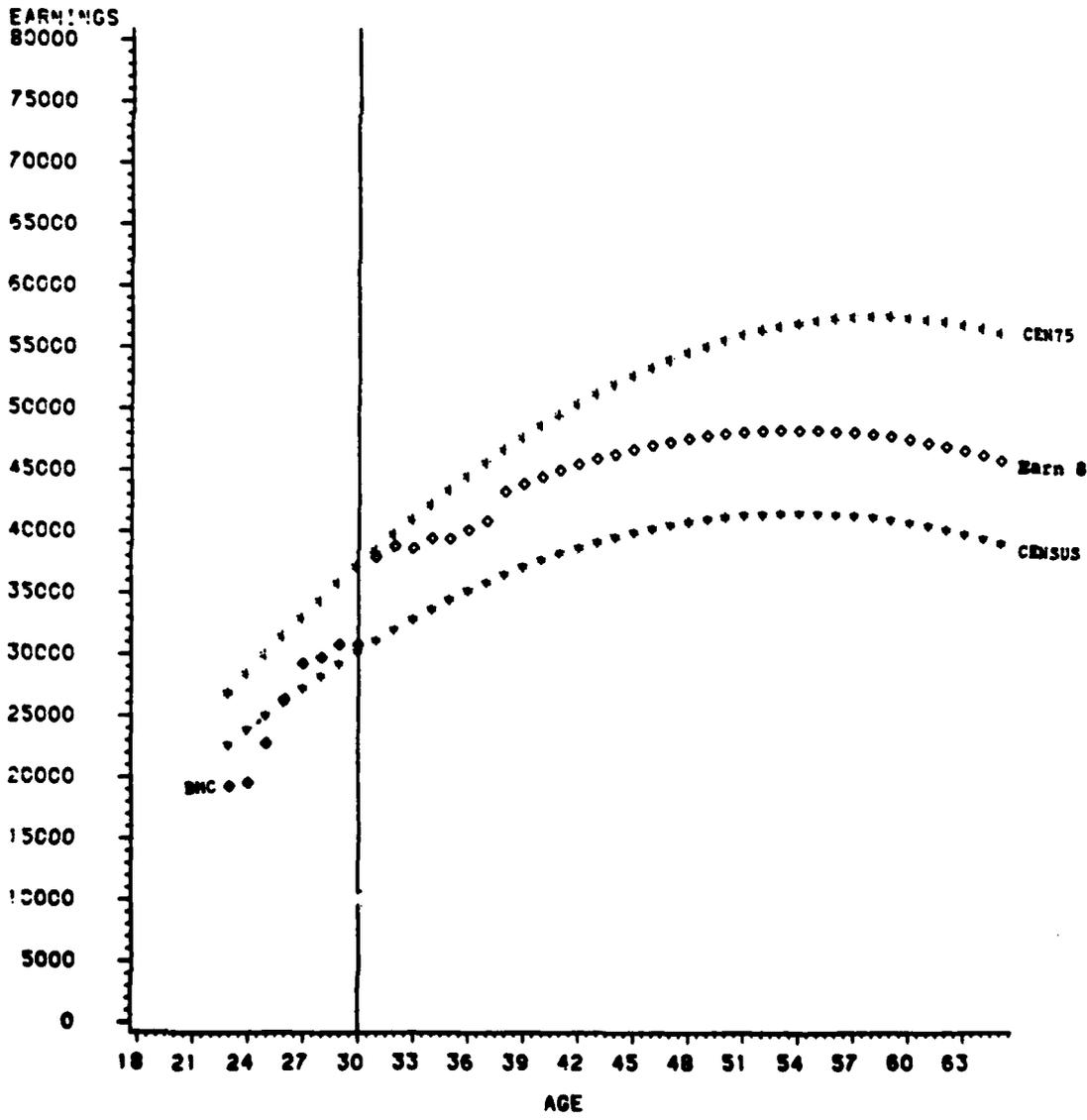


Figure 20

POST SERVICE EARNINGS S&E SEPARATED FROM THE SERVICE AFTER 20 YEARS

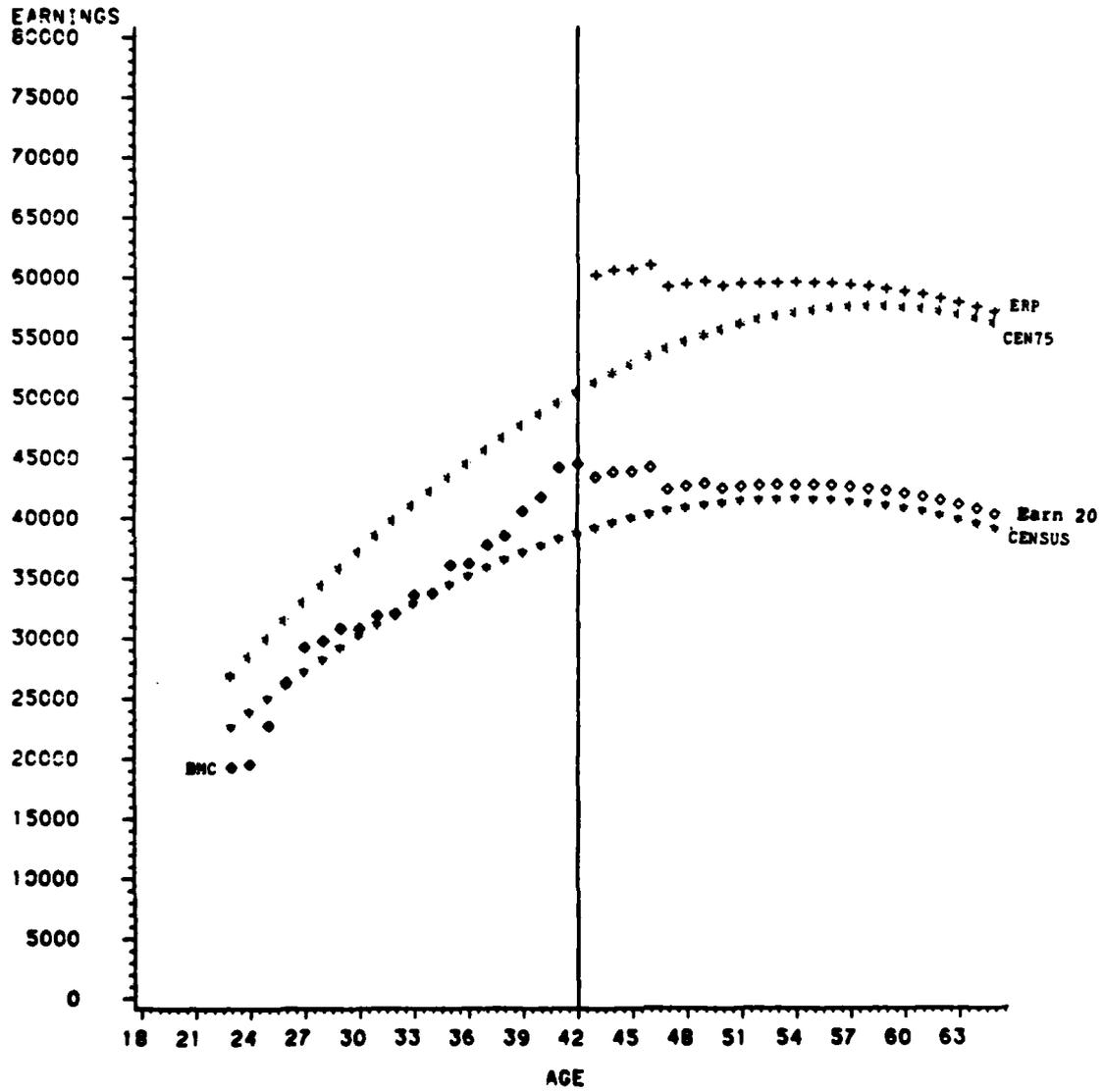


Figure 21

POST SERVICE EARNINGS

M&D OFFICERS SEPARATED FROM THE SERVICE AFTER 8 YEARS

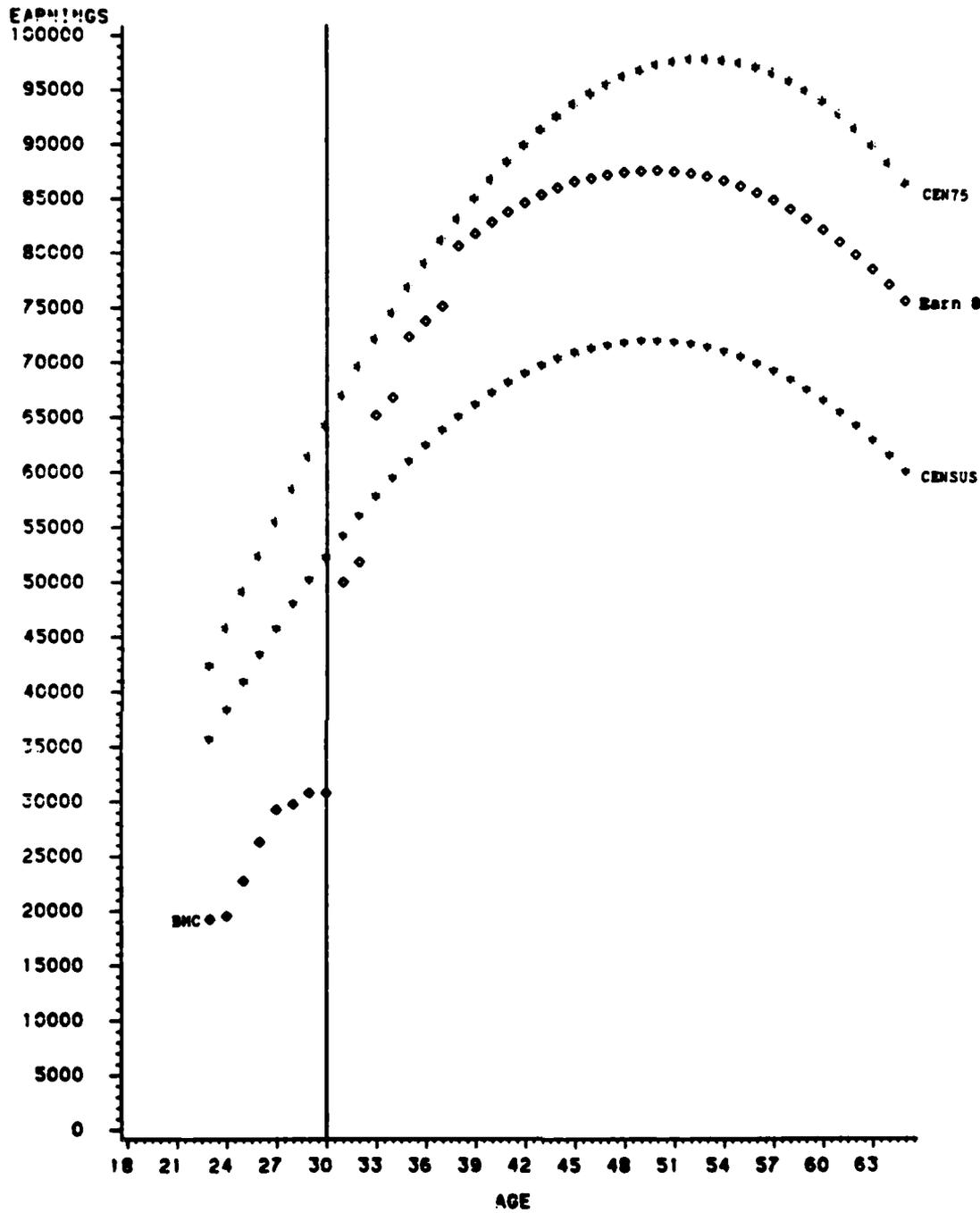
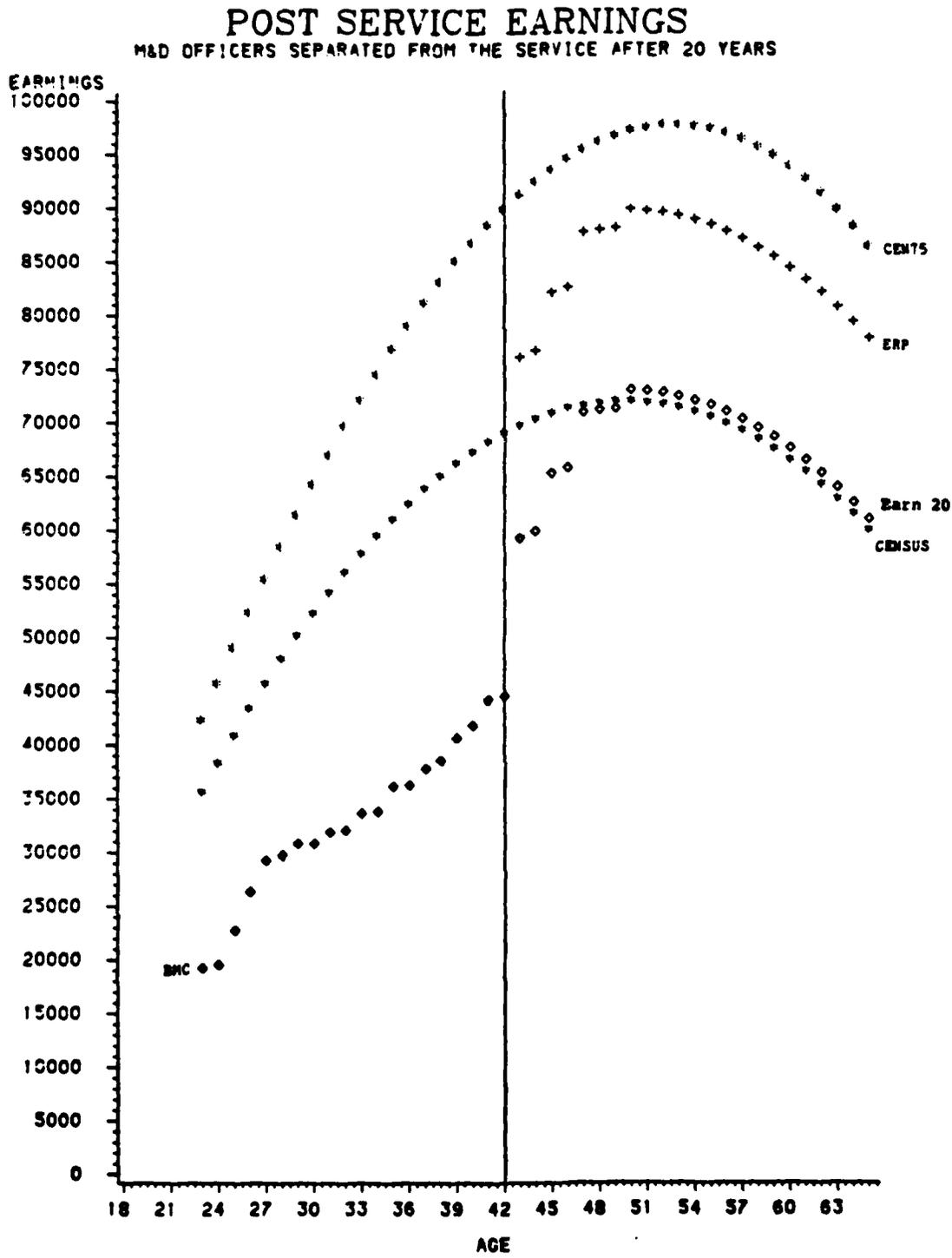


Figure 22



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Figure 23

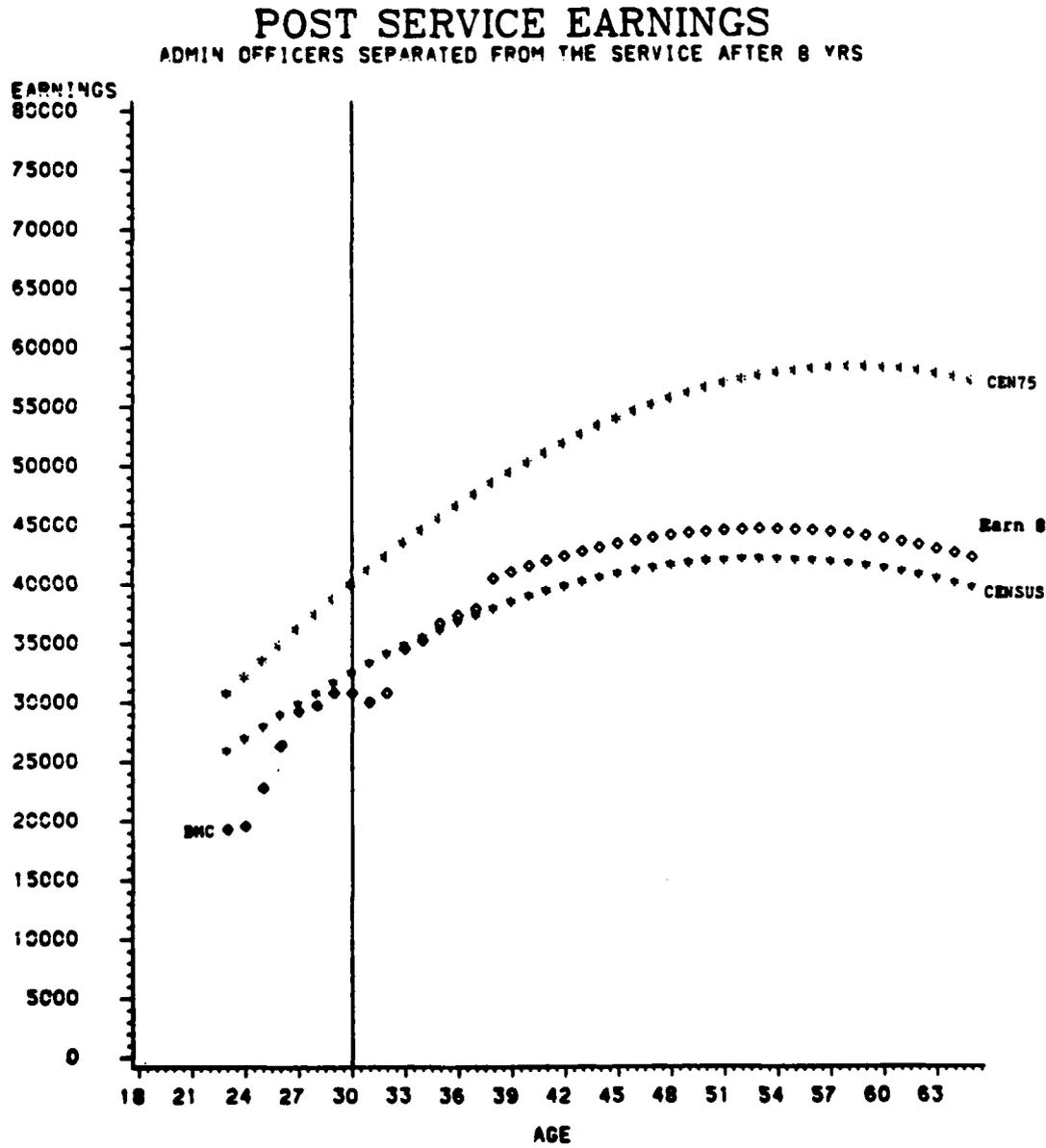


Figure 24

POST SERVICE EARNINGS ADMIN OFFICERS SEPARATED FROM THE SERVICE AFTER 20 YRS

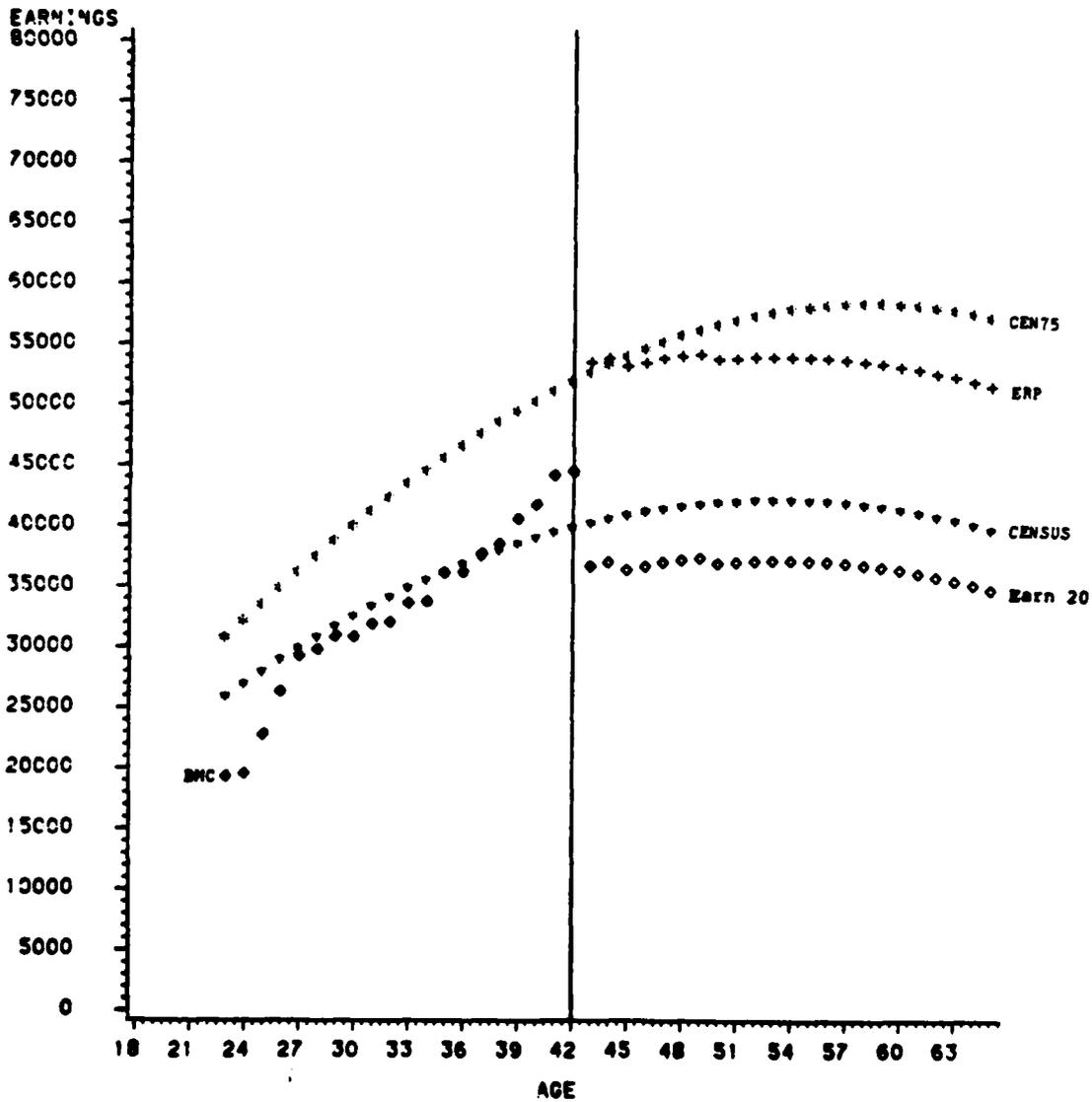


Figure 25

POST SERVICE EARNINGS ENLISTED PERSONNEL SEPARATED AFTER 4 YRS

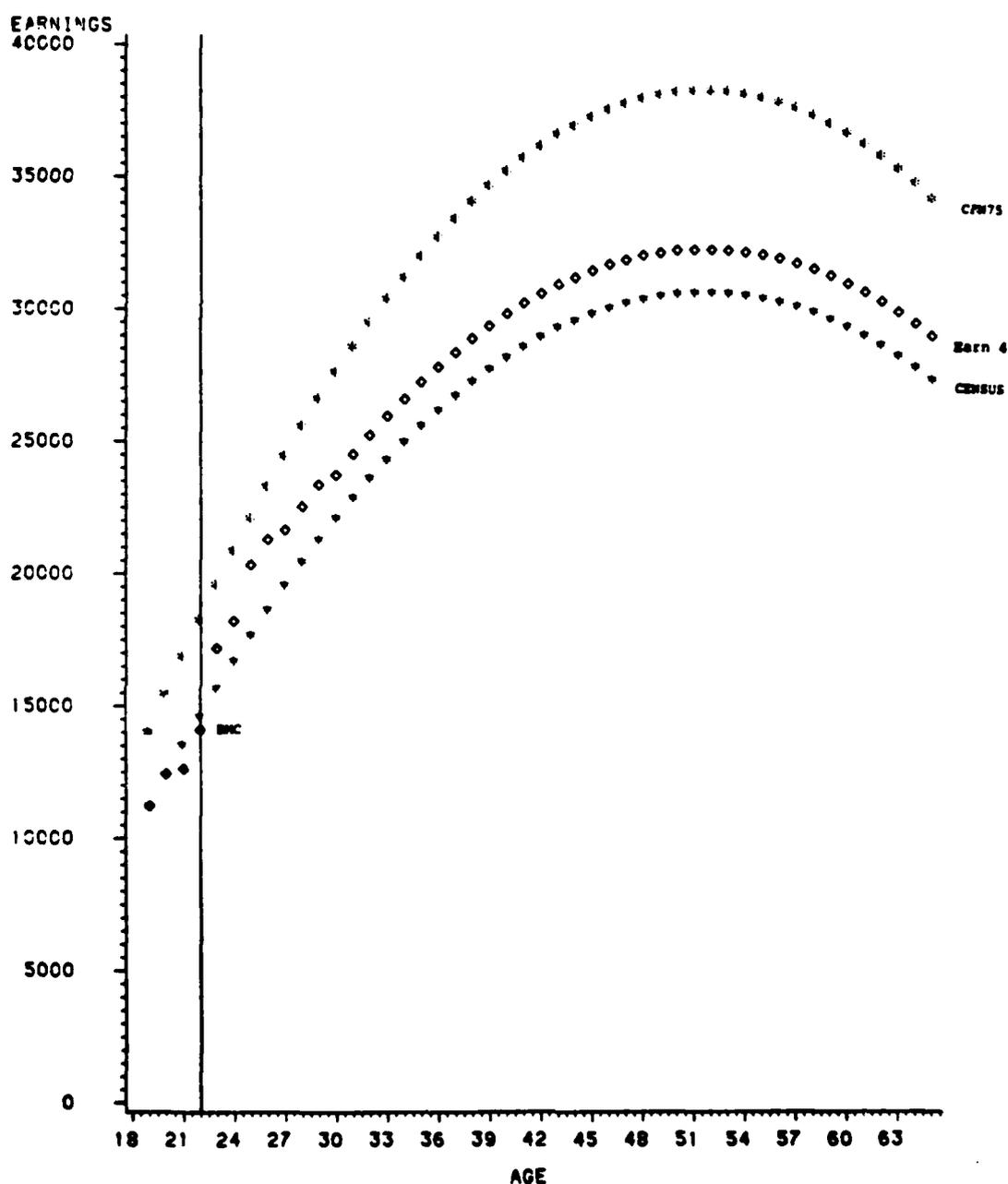


Figure 26

POST SERVICE EARNINGS ENLISTED PERSONNEL SEPARATED AFTER 8 YRS

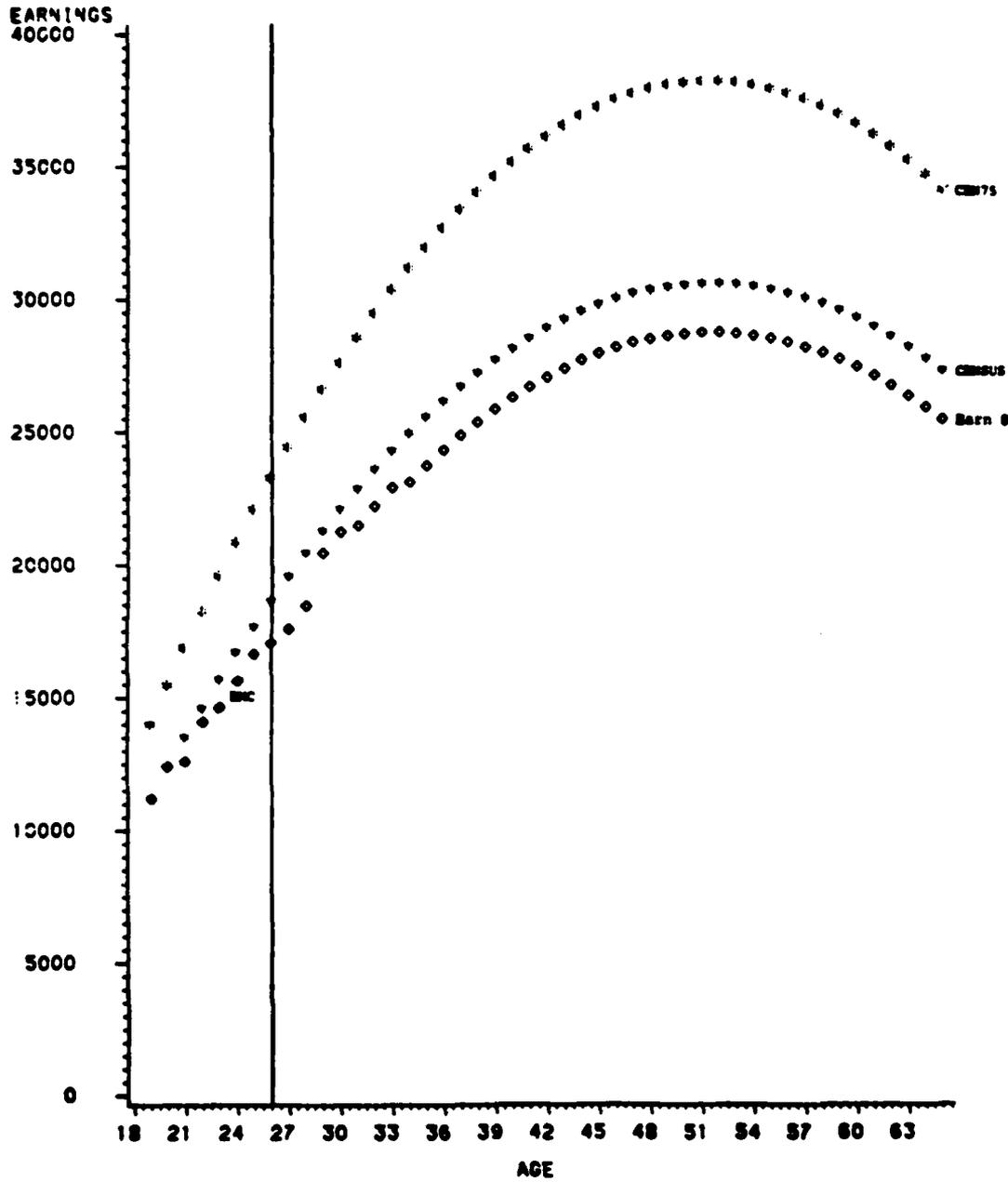


Figure 27

POST SERVICE EARNINGS ENLISTED PERSONNEL SEPARATED AFTER 12 YRS

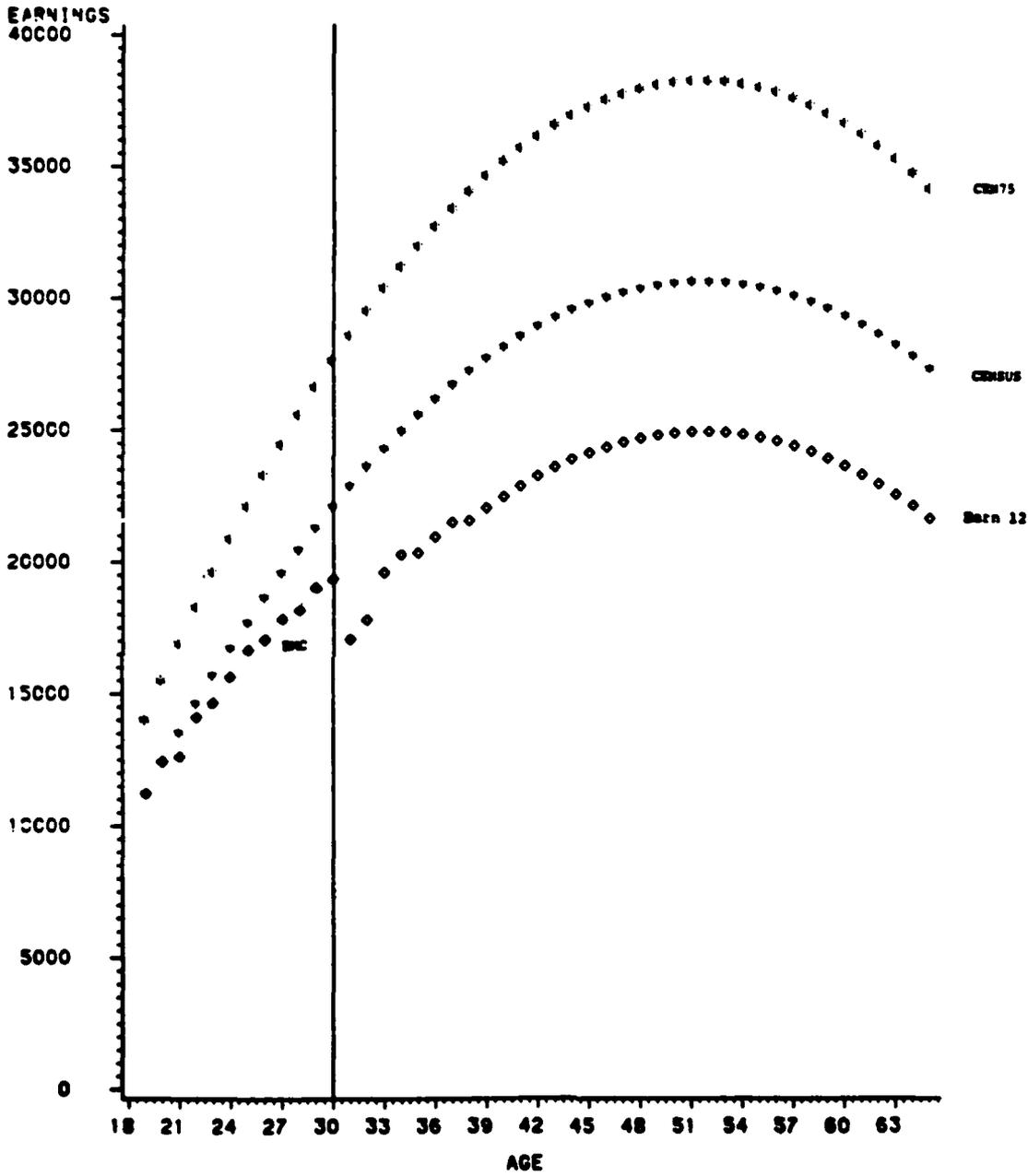


Figure 28

POST SERVICE EARNINGS ENLISTED PERSONNEL SEPARATED AFTER 16 YRS

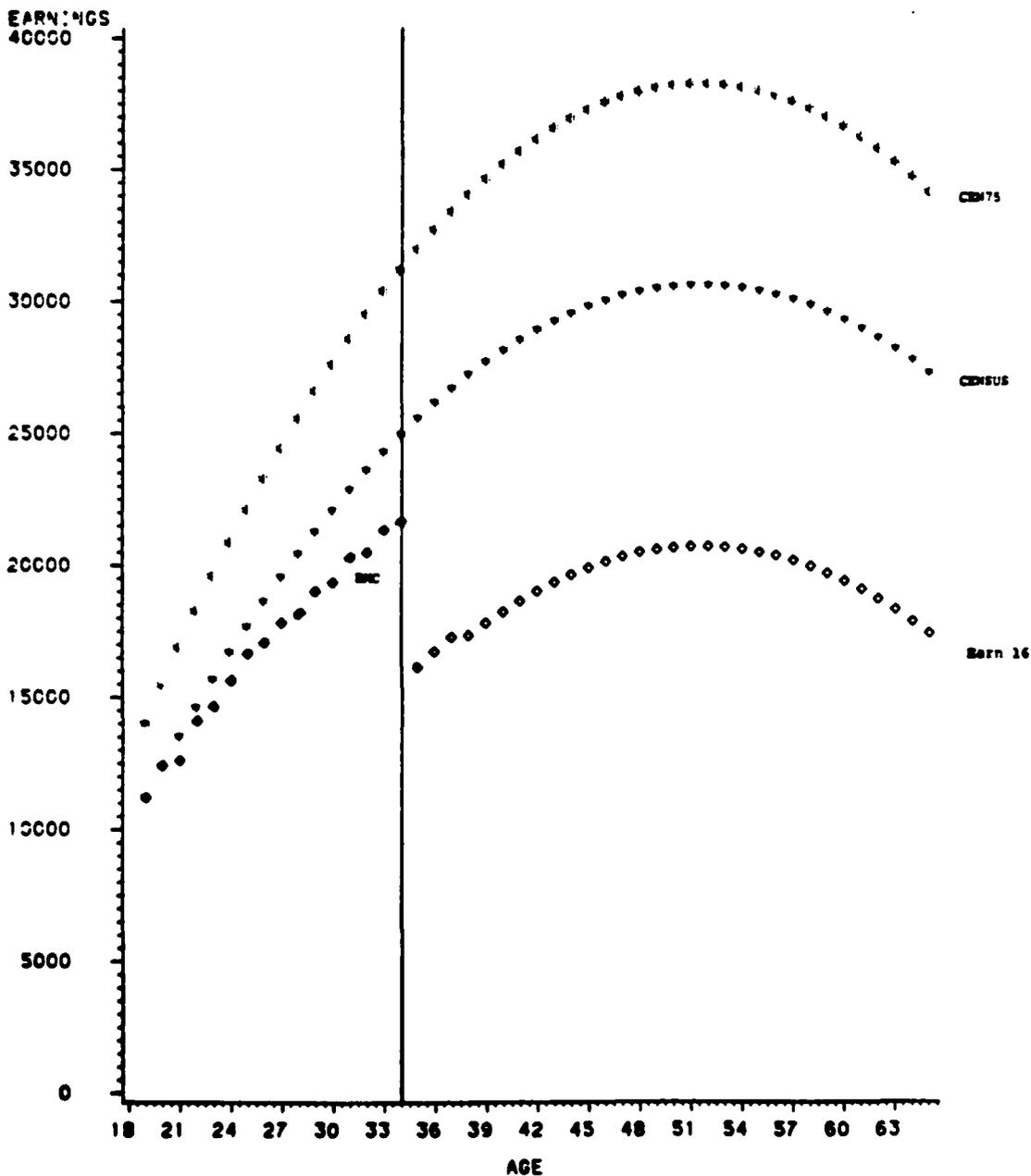


Figure 29

POST SERVICE EARNINGS ENLISTED PERSONNEL SEPARATED AFTER 20 YRS

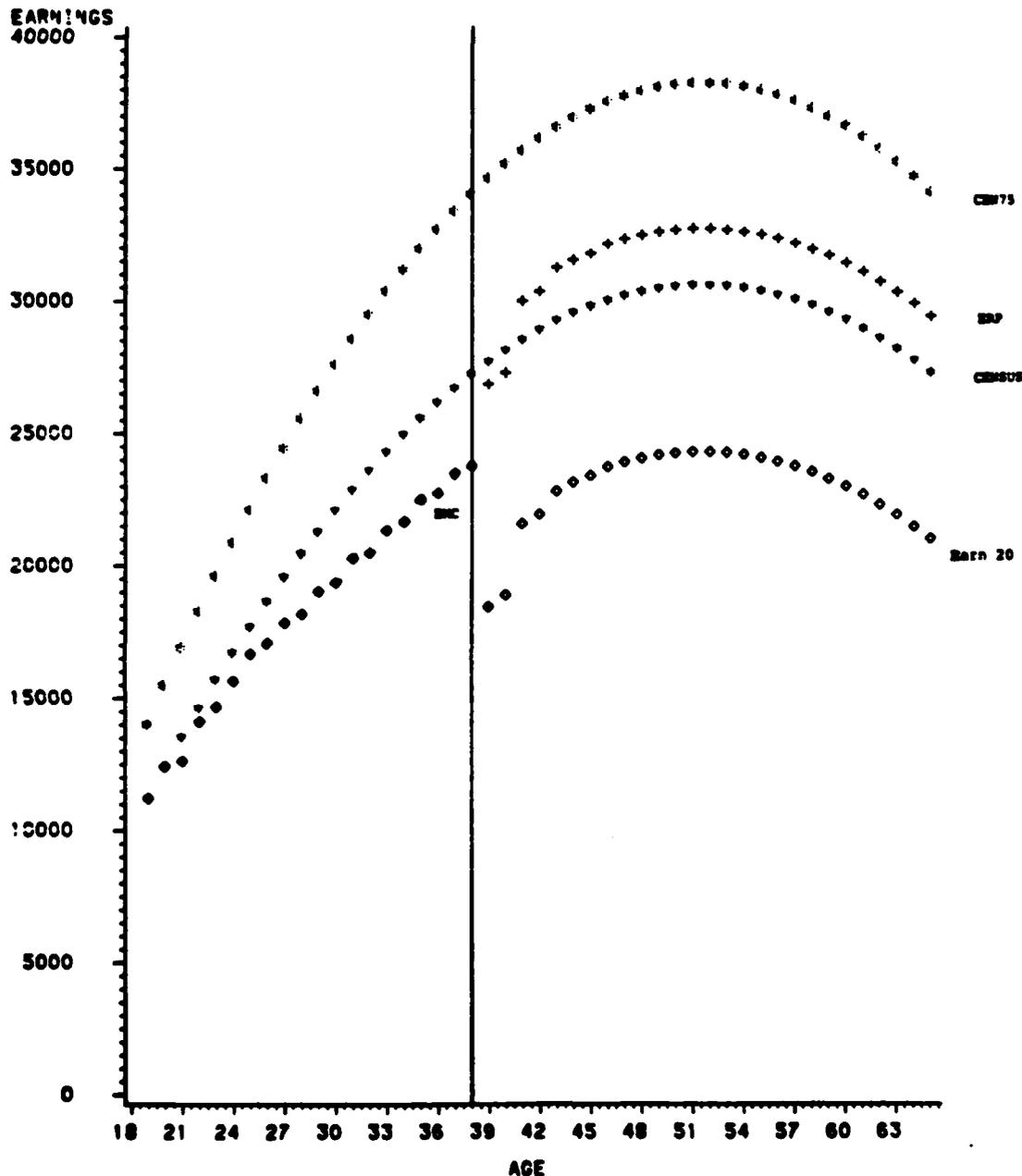
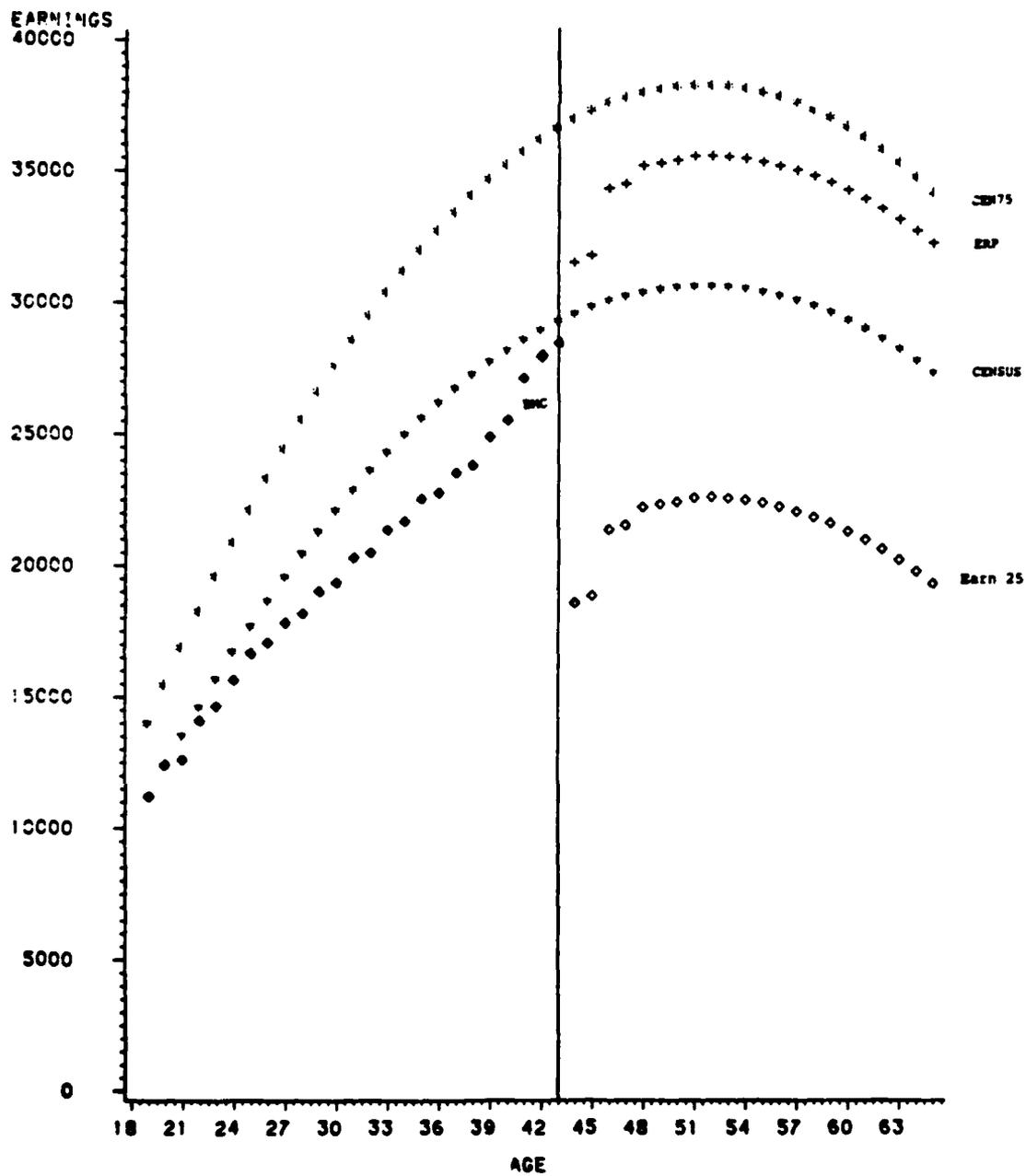


Figure 30

POST SERVICE EARNINGS ENLISTED PERSONNEL SEPARATED AFTER 25 YRS



APPENDIX Q

Figure 31

POST SERVICE EARNINGS ENLISTED PERSONNEL SEPARATED AFTER 30 YRS

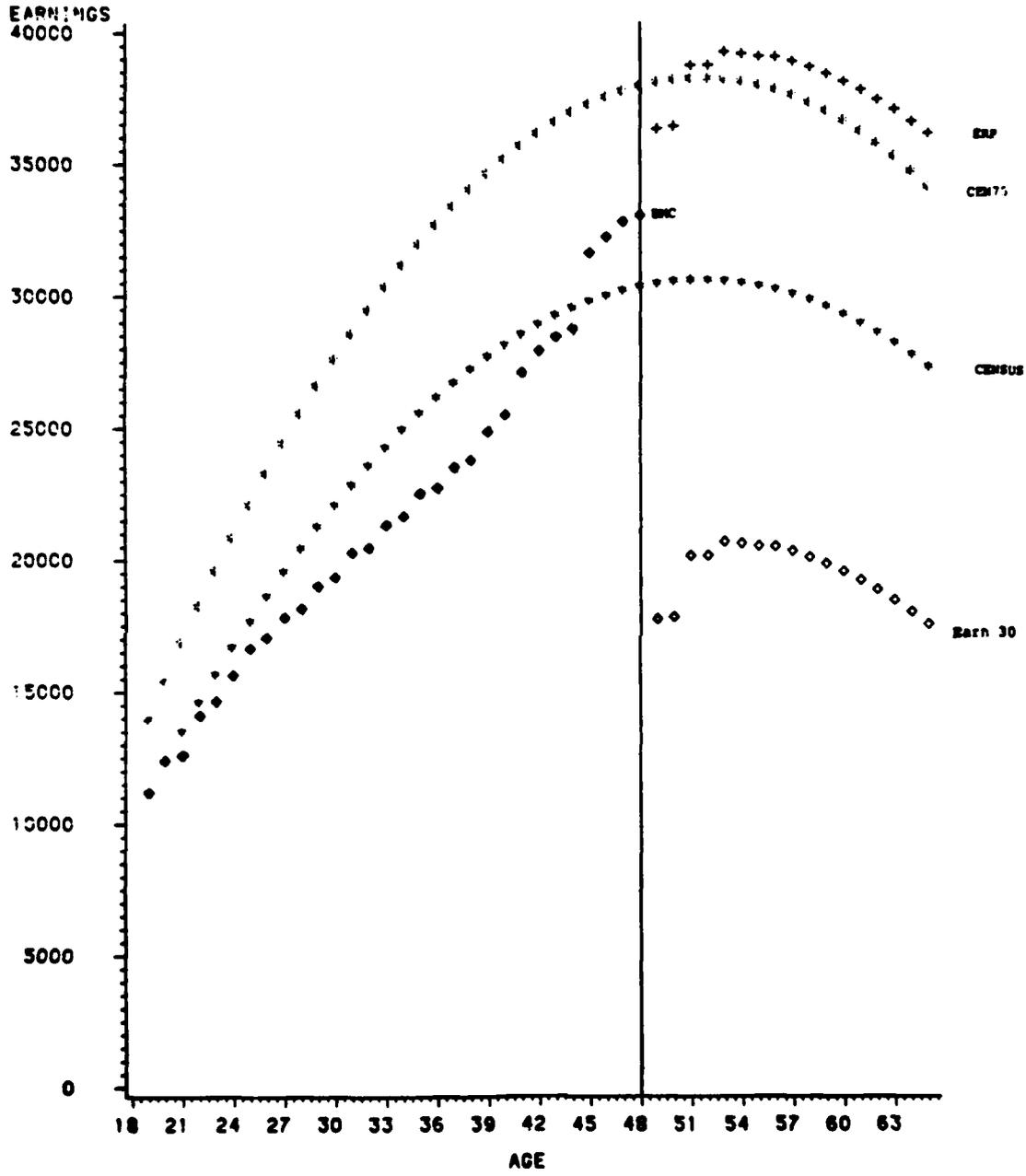


Figure 32

POST SERVICE EARNINGS ENLISTED SEPARATEES

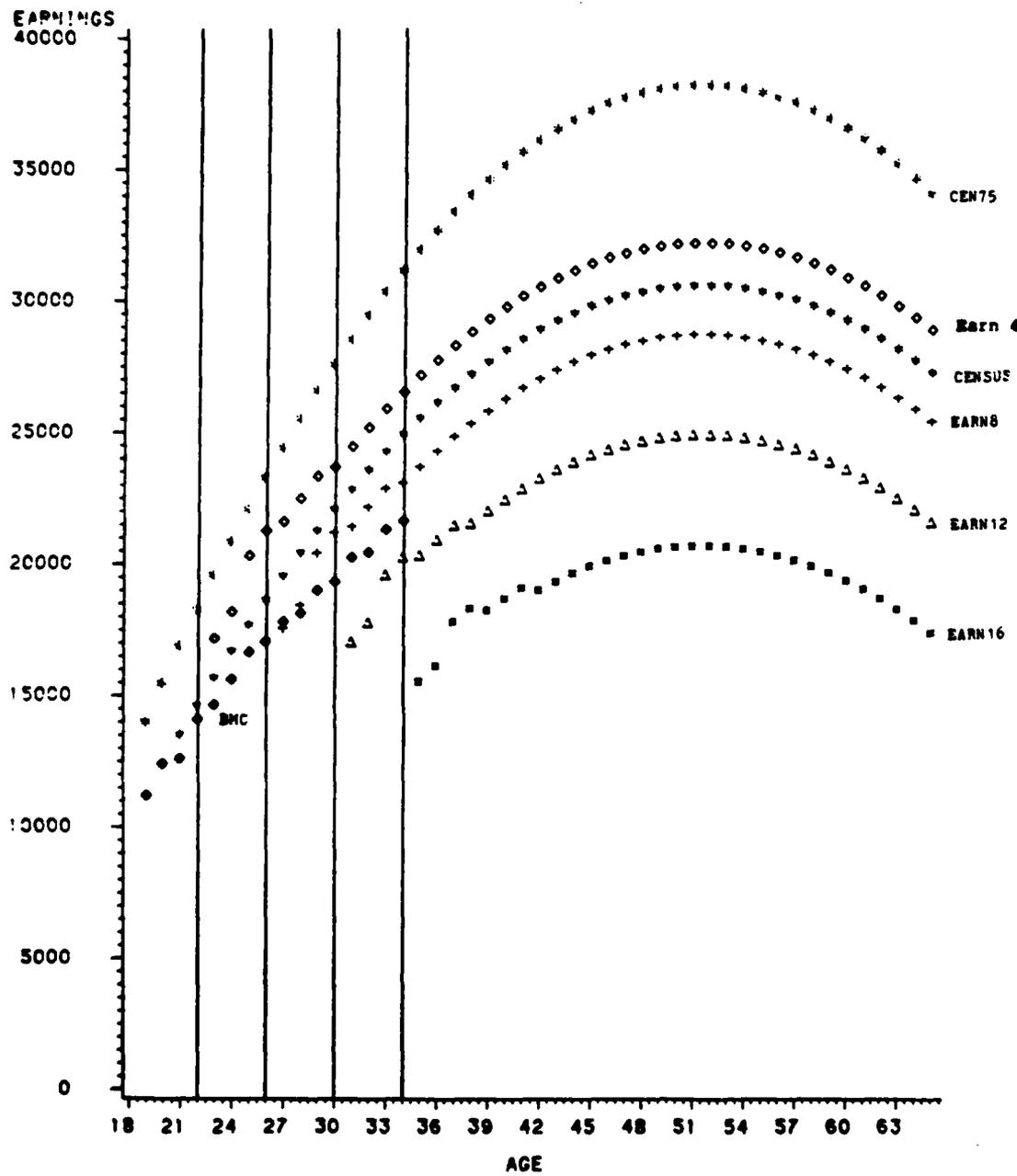


Figure 33

POST SERVICE EARNINGS ENLISTED RETIREES

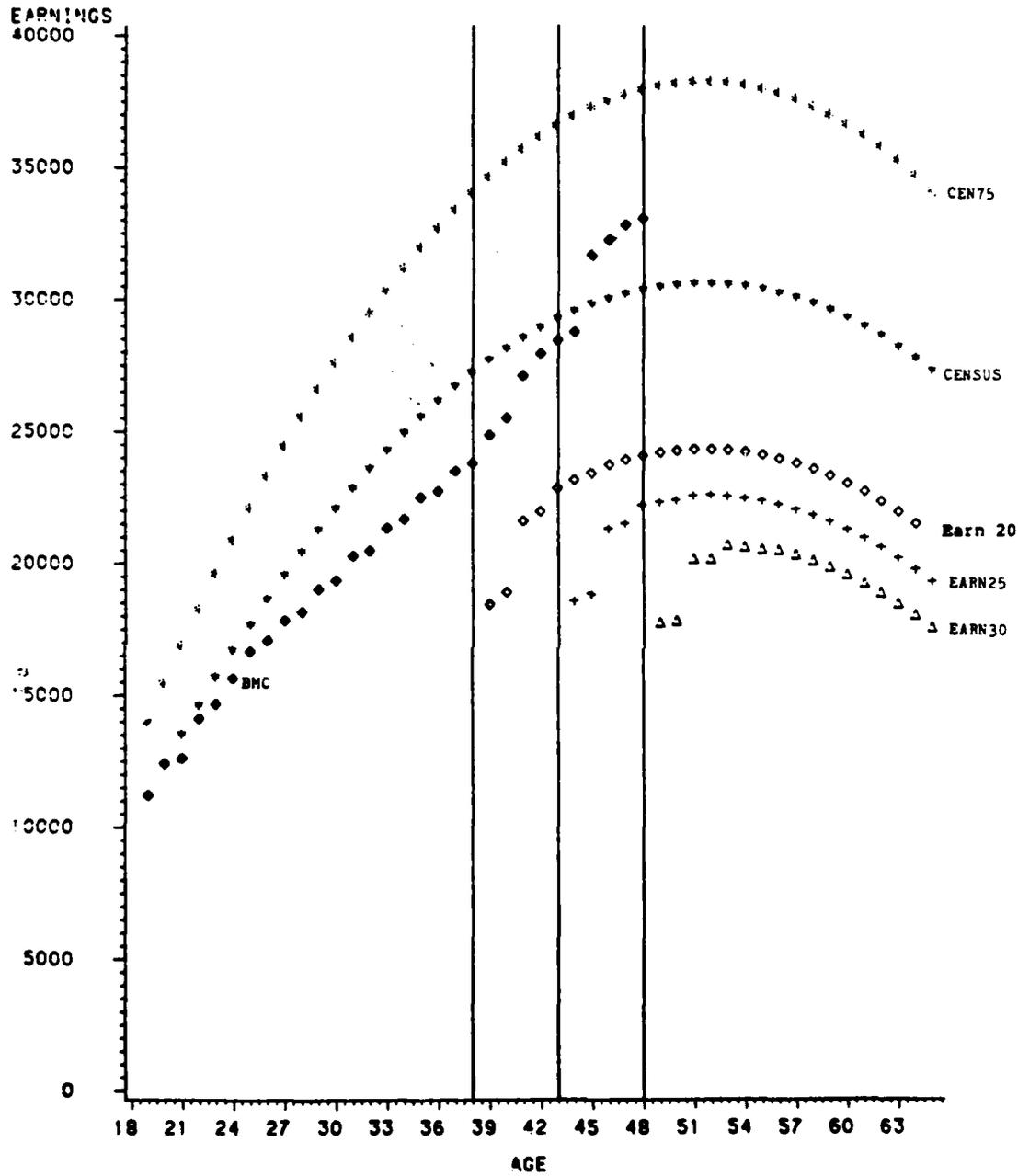


Figure 34

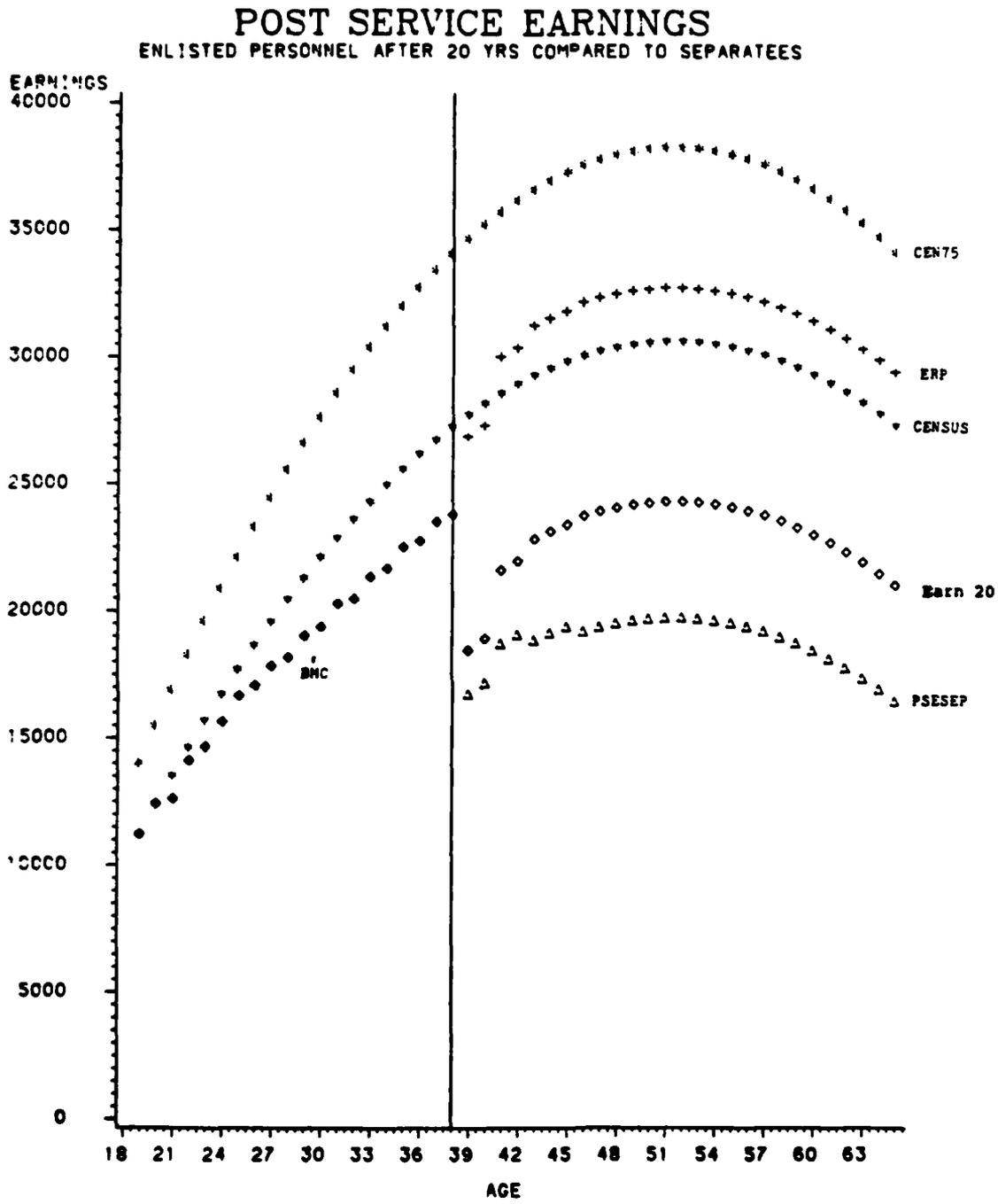


Figure 35

POST SERVICE EARNINGS

BLACK ENLISTED PERSONNEL SEPARATED AFTER 8 YRS

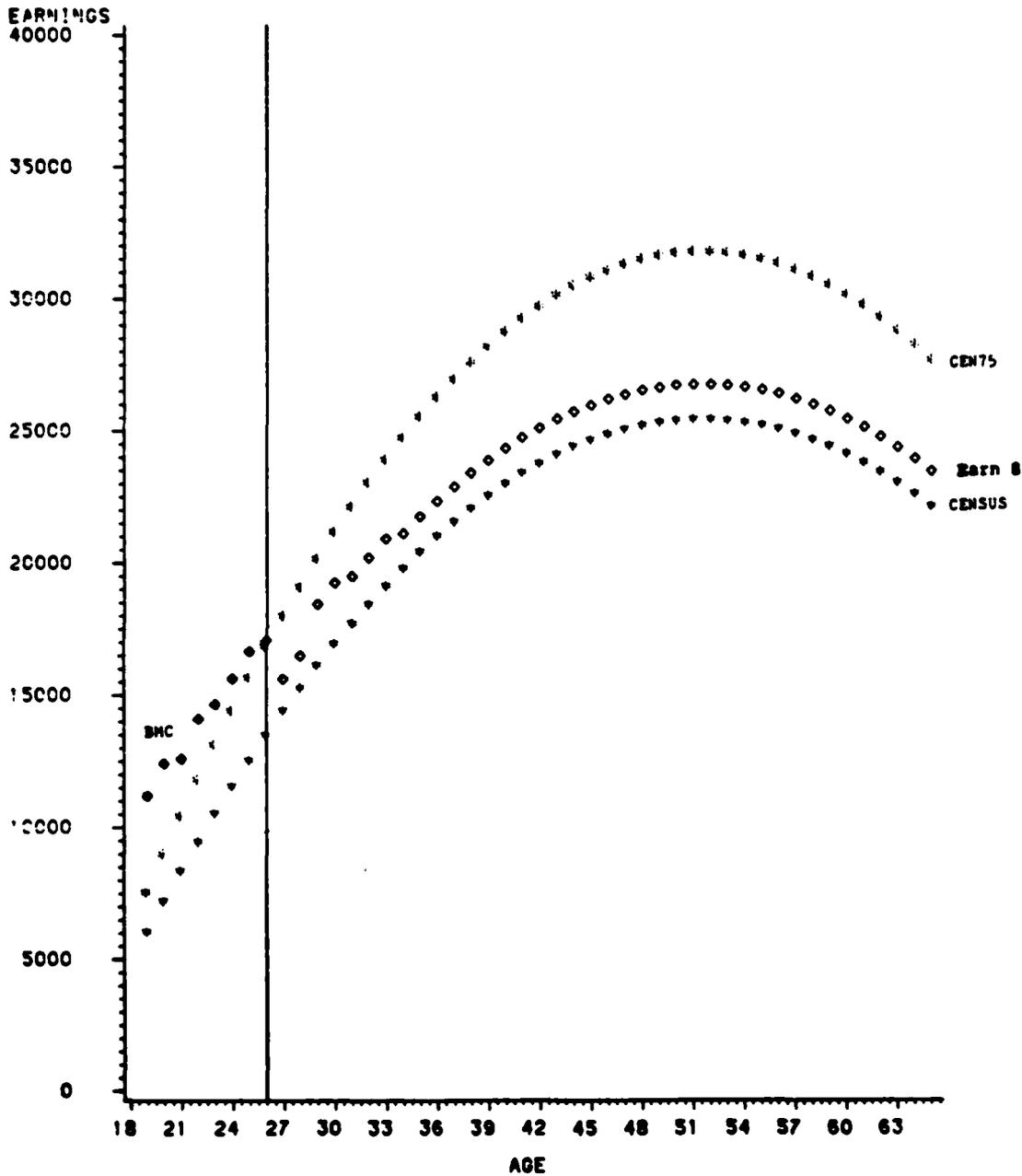


Figure 36

POST SERVICE EARNINGS BLACK ENLISTED PERSONNEL SEPARATED AFTER 20 YRS

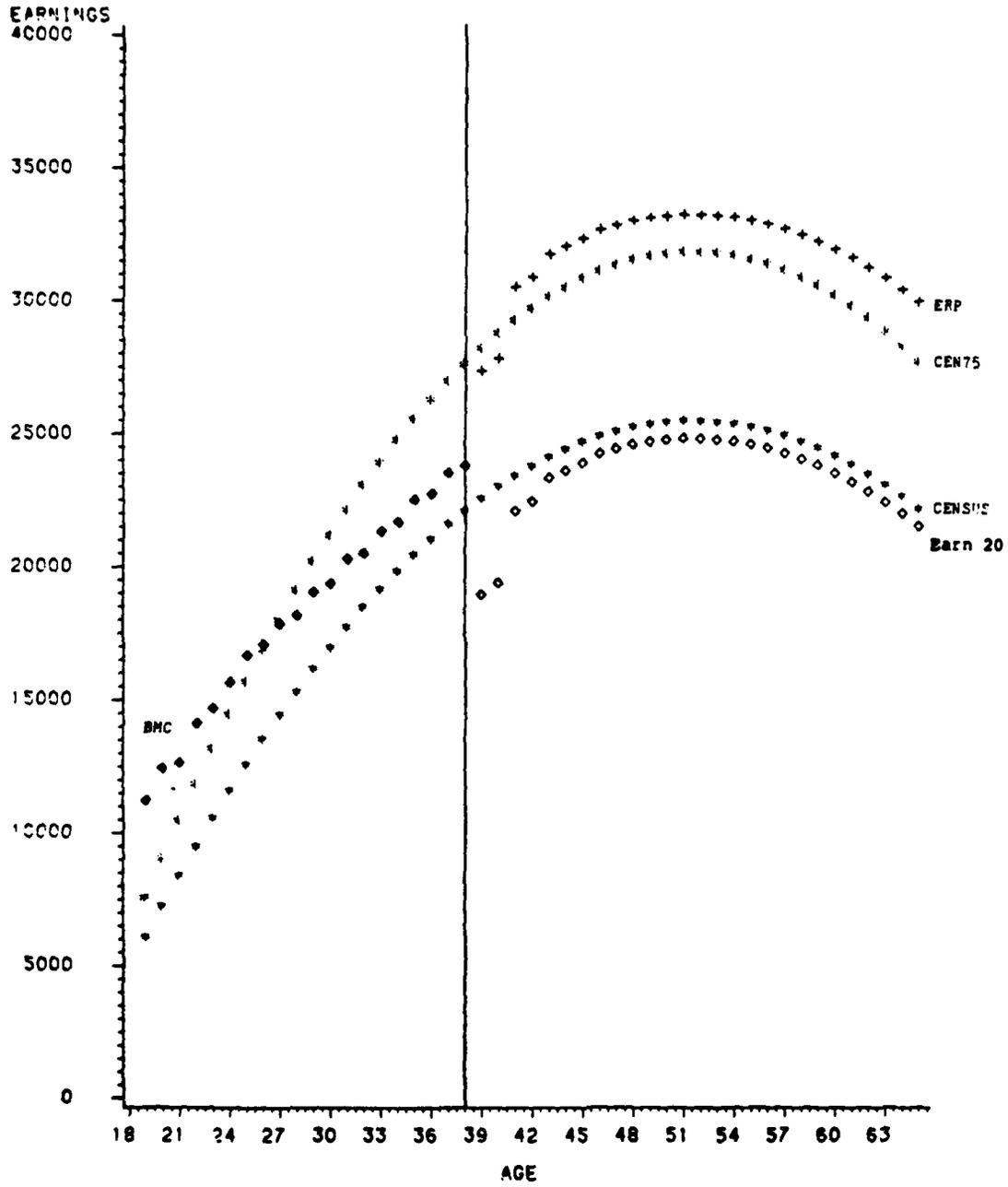


Figure 37

POST SERVICE EARNINGS ENLISTED PERSONNEL SEPARATED AFTER 8 YRS LESS THAN HIGH SCHOOL DEGREE

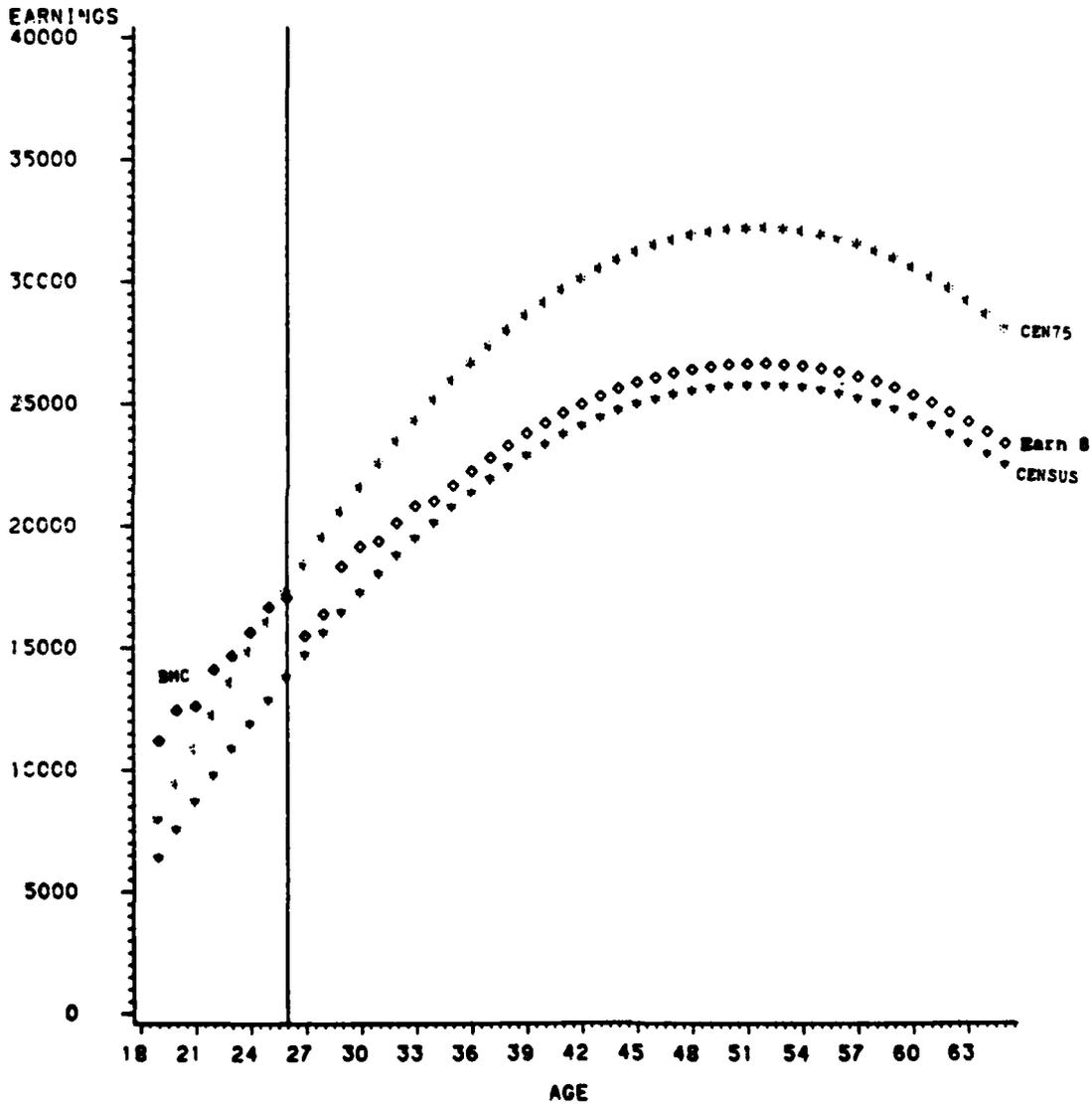
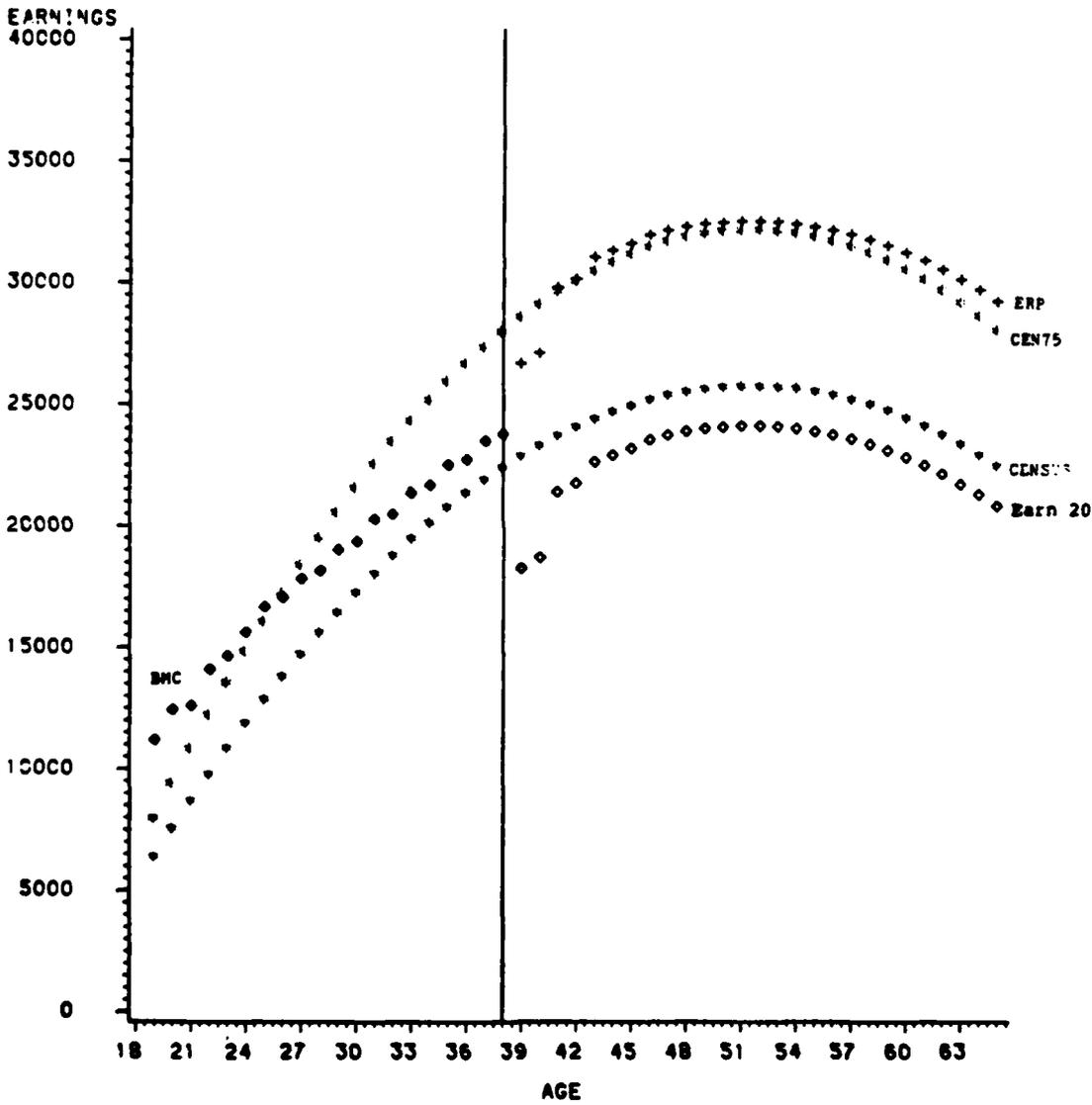


Figure 38

POST SERVICE EARNINGS ENLISTED PERSONNEL SEPARATED AFTER 20 YRS LESS THAN HIGH SCHOOL DEGREE



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Figure 39

POST SERVICE EARNINGS ENLISTED PERSONNEL SEPARATED AFTER 8 YRS COLLEGE GRADUATES

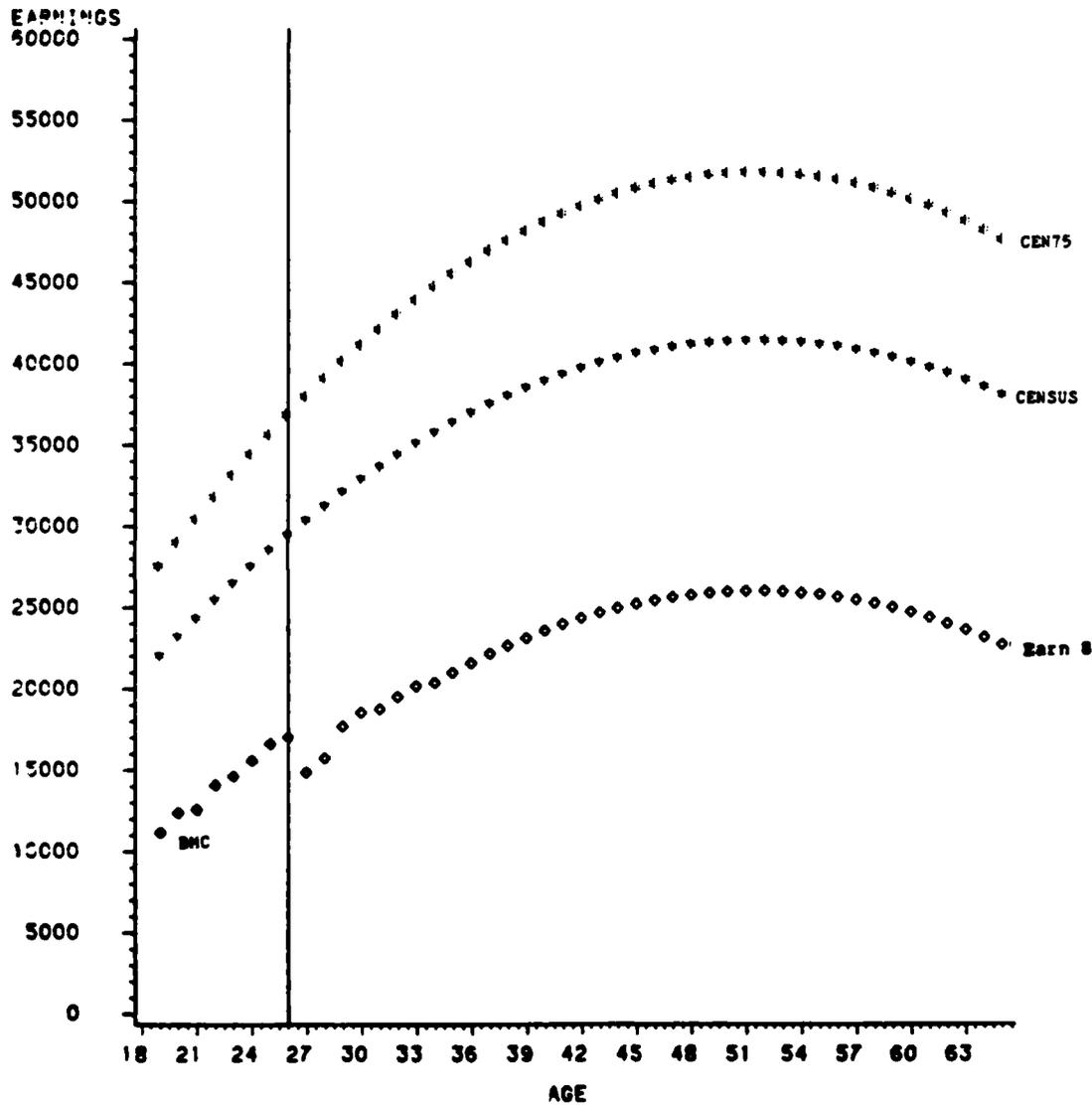


Figure 40

POST SERVICE EARNINGS ENLISTED PERSONNEL SEPARATED AFTER 20 YRS COLLEGE GRADUATES

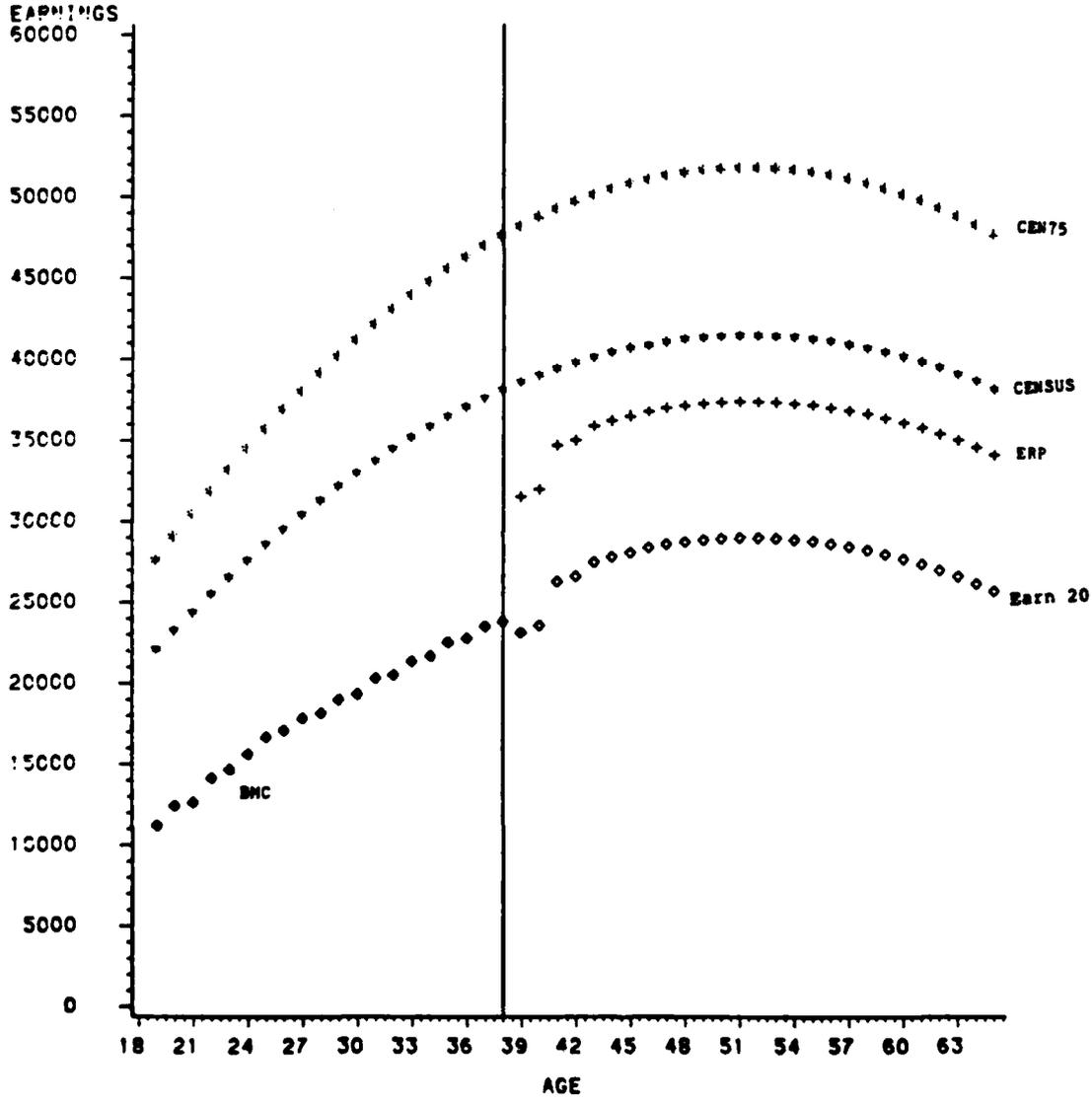
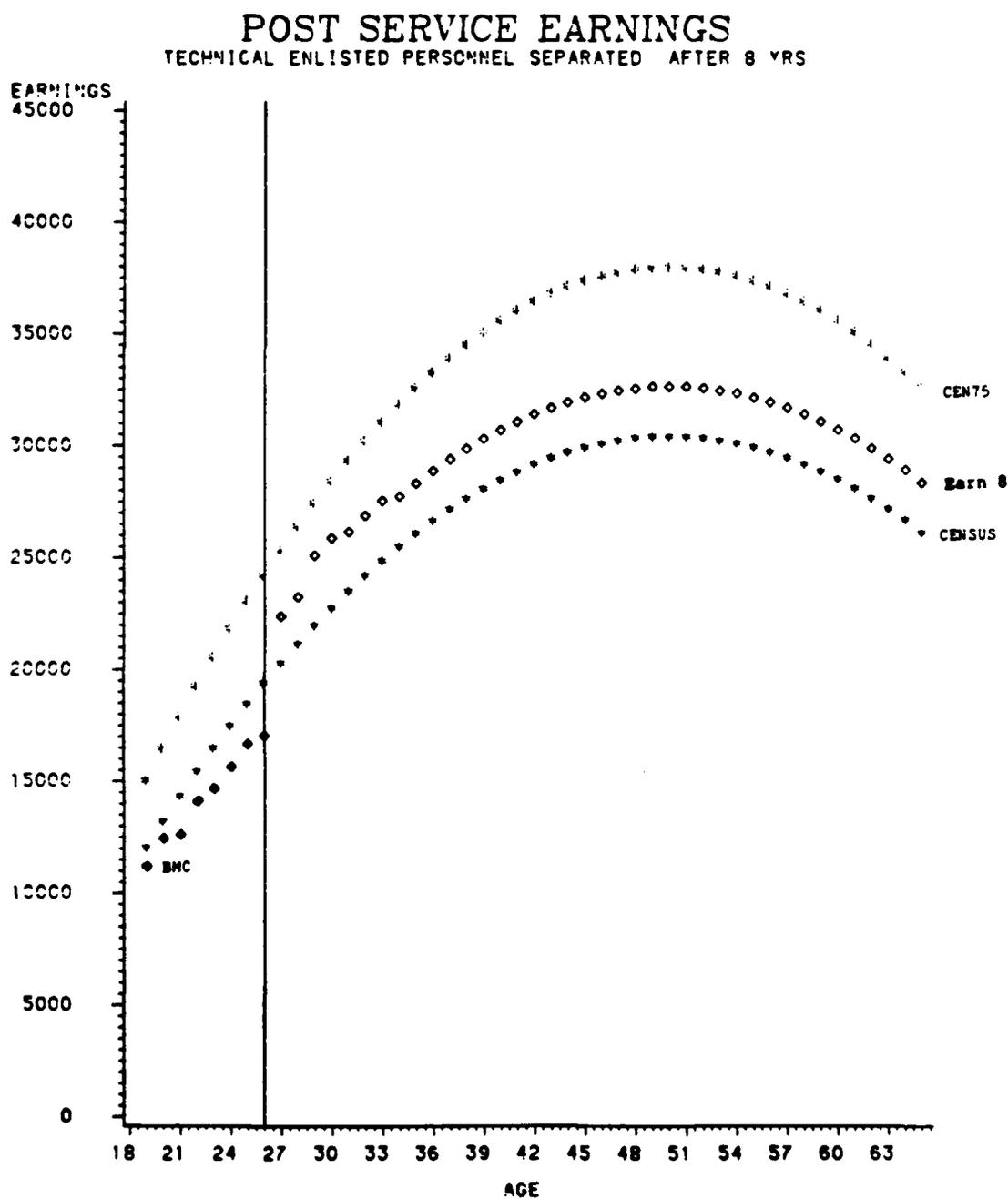


Figure 41



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Figure 42

POST SERVICE EARNINGS TECHNICAL ENLISTED PERSONNEL SEPARATED AFTER 20 YRS

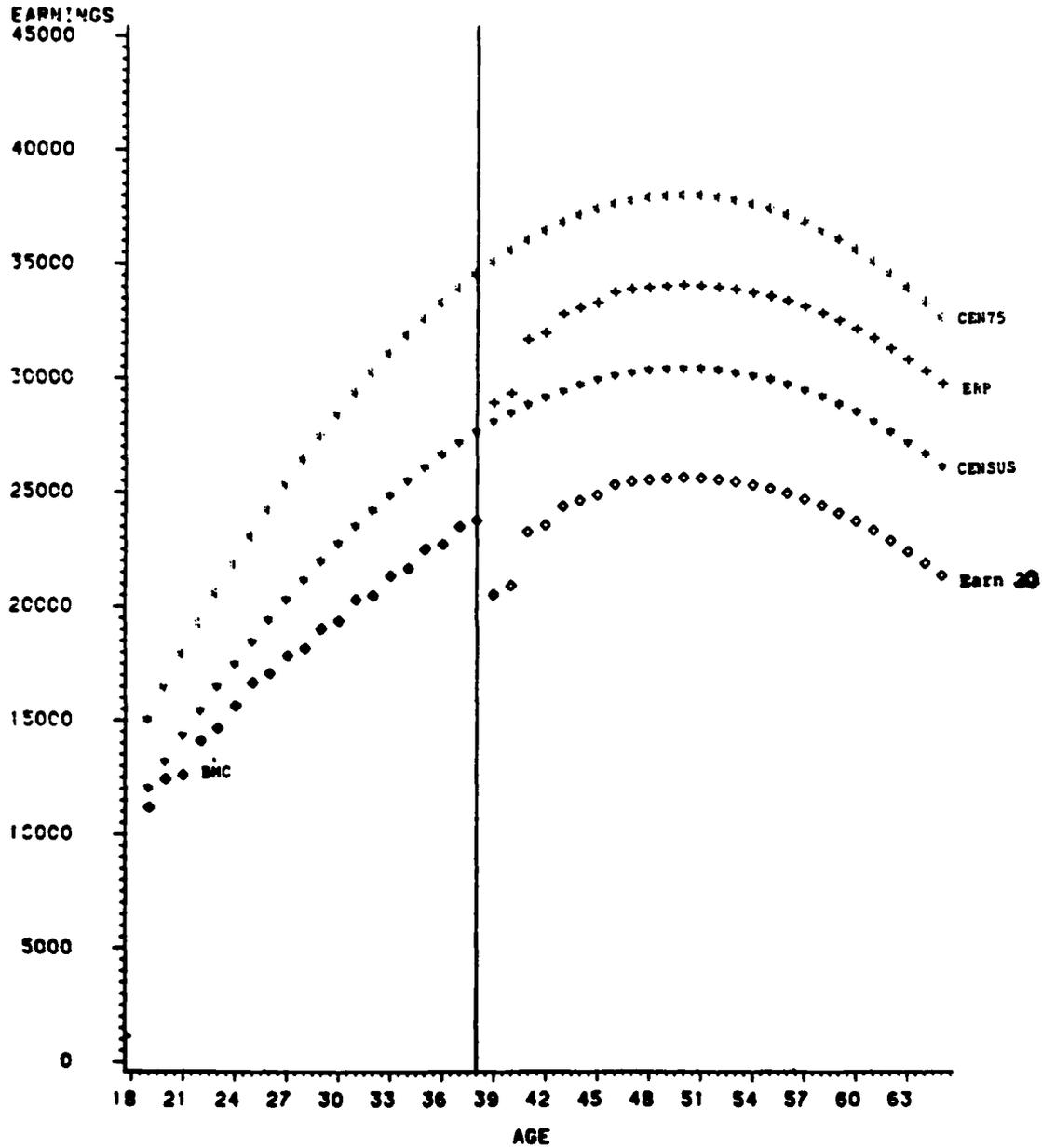


Figure 43

POST SERVICE EARNINGS M&D ENLISTED PERSONNEL SEPARATED AFTER 8 YRS

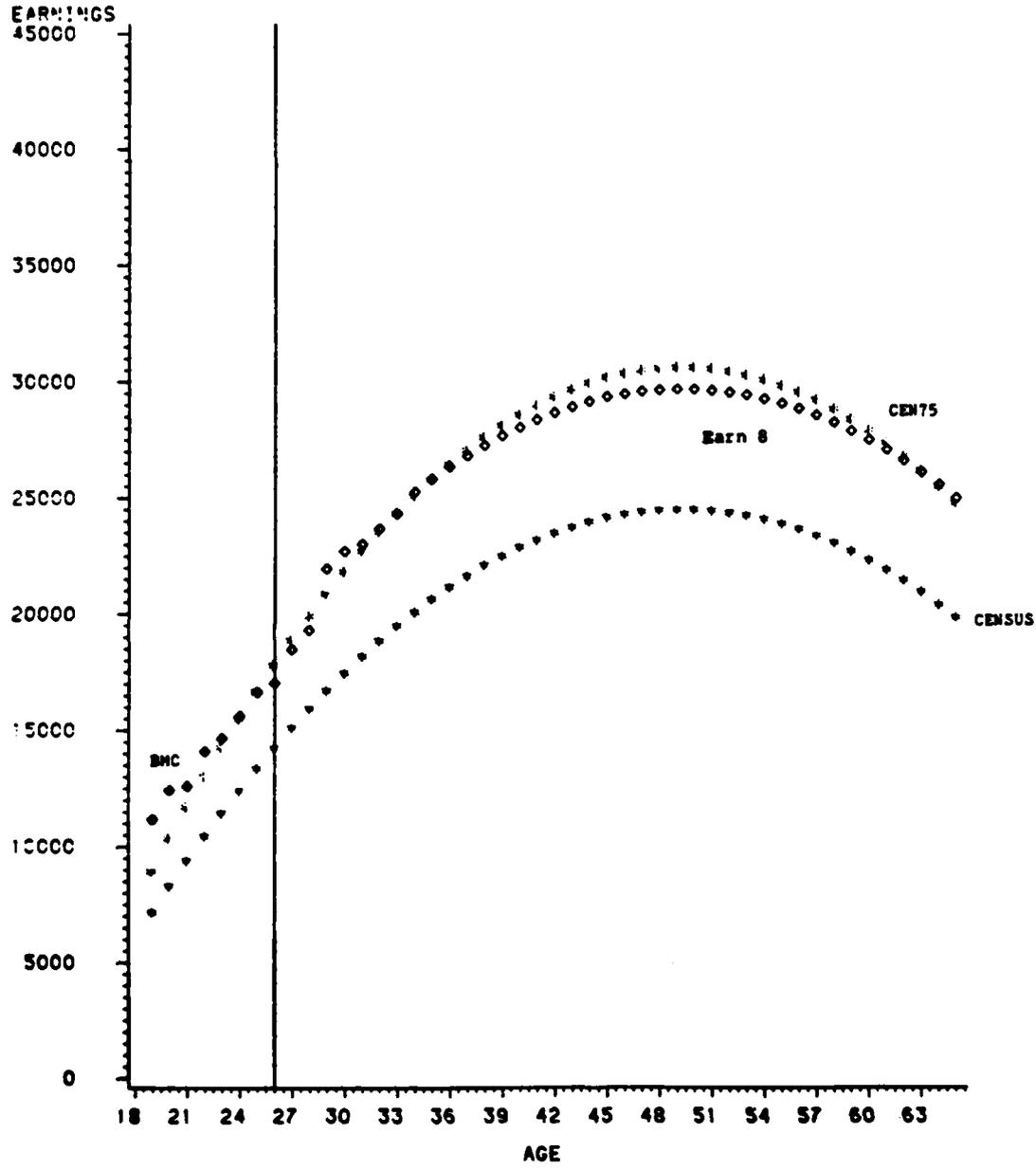


Figure 44

POST SERVICE EARNINGS M&D ENLISTED PERSONNEL SEPARATED AFTER 20 YRS

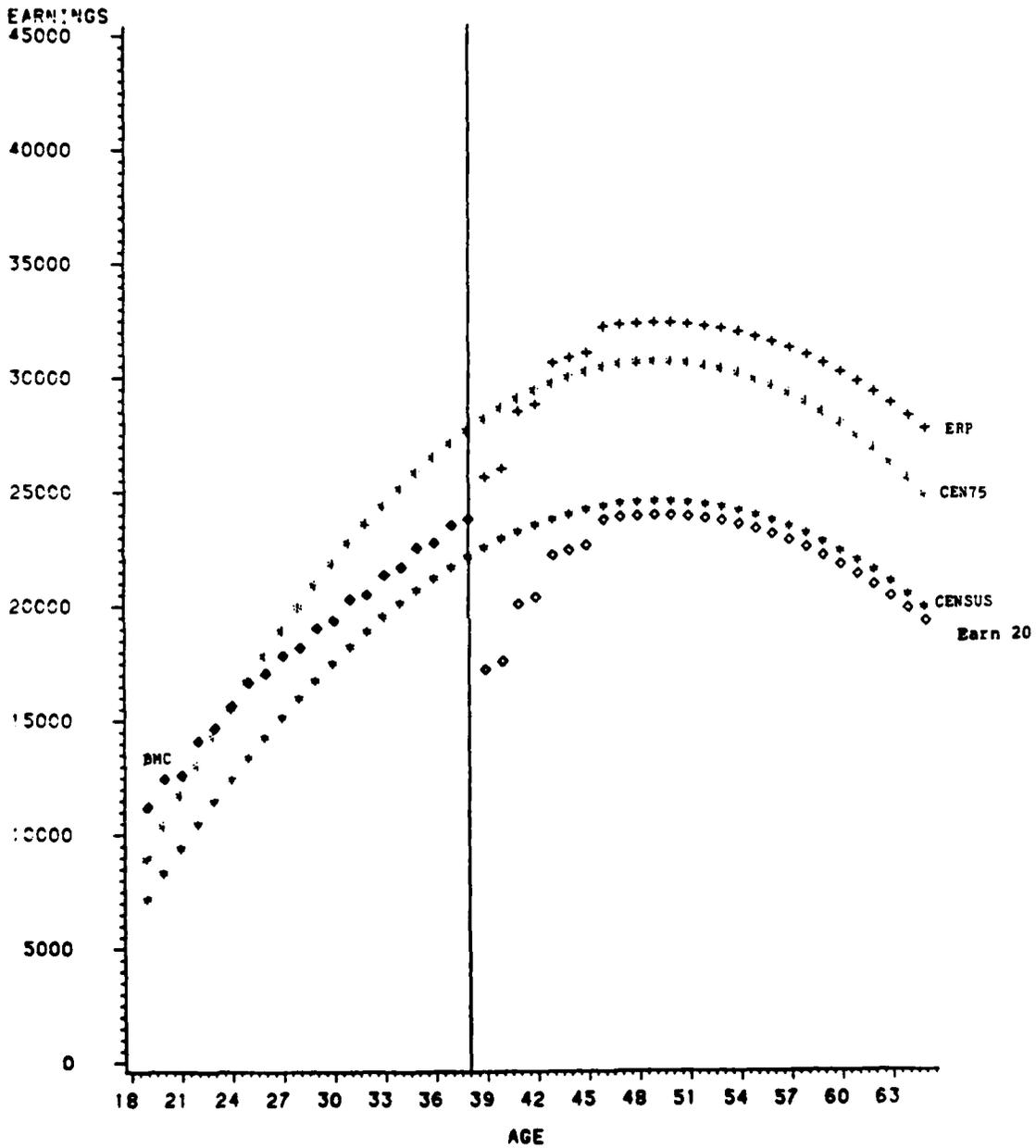


Figure 45

POST SERVICE EARNINGS ADMIN ENLISTED PERSONNEL SEPARATED AFTER 8 YRS

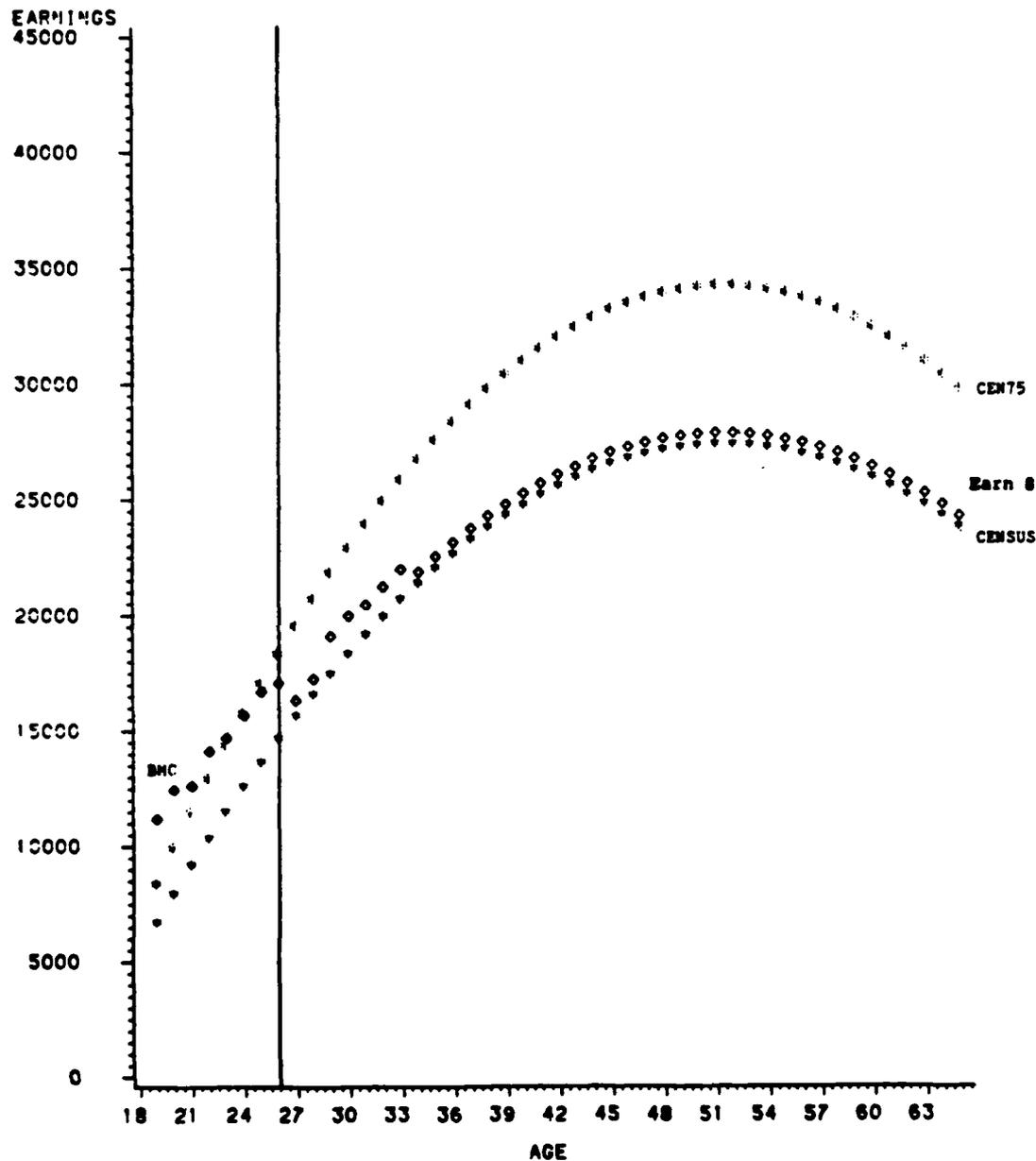
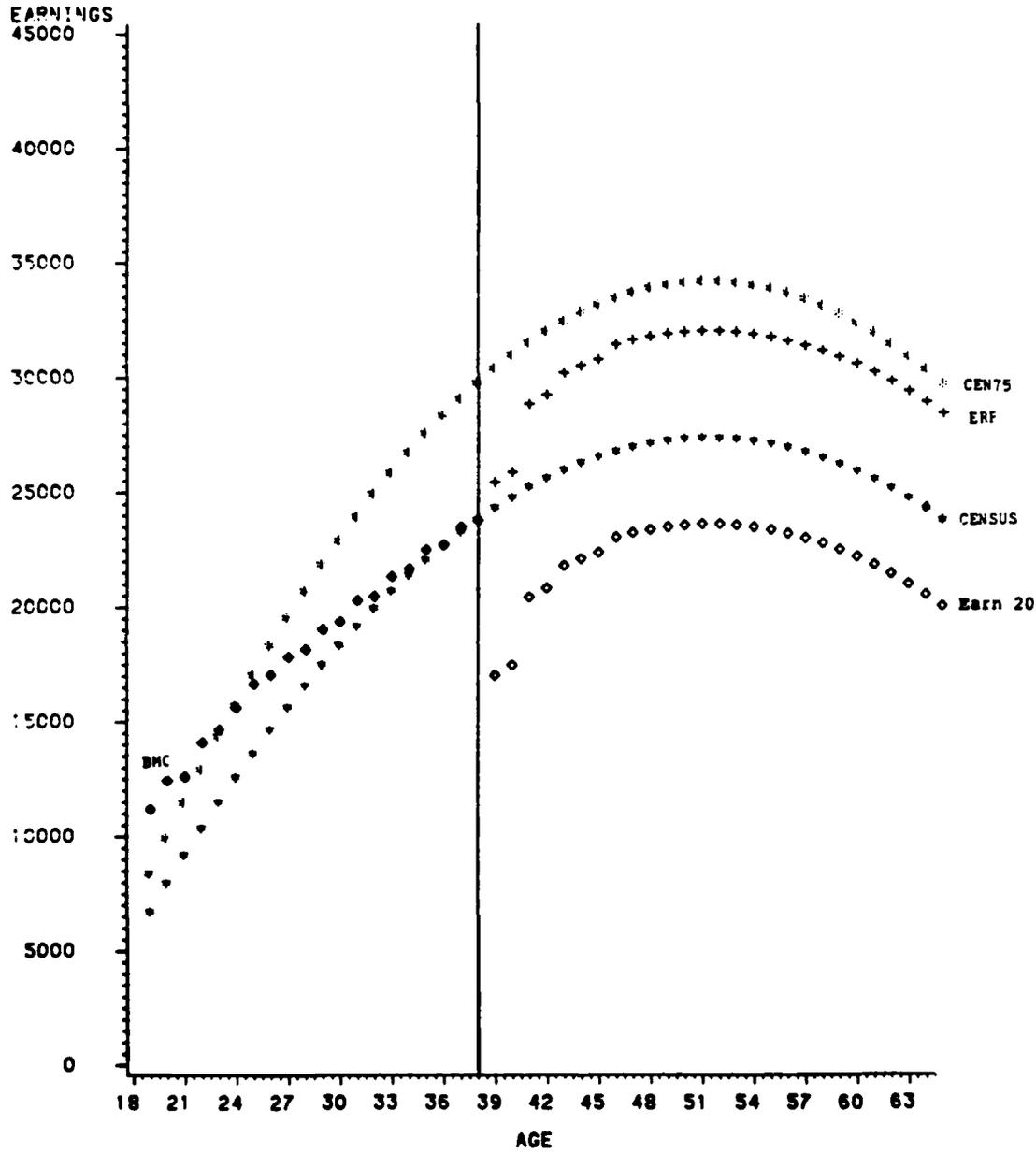


Figure 46

POST SERVICE EARNINGS

ADM!N ENLISTED PERSONNEL SEPARATED AFTER 20 YRS



APPENDIX V: SERVICE REGRESSIONS

This appendix presents the results of separate models estimated for each Service. For each Service, models for officer separatees and retirees and enlisted separatees and retirees were estimated. The specifications were the same as the models described in the body of the report, with one exception. To eliminate differences in the regression results due to differences in the distribution of occupations within each Service, the specification included categorical variables for occupations.

The IRS data base included a substantial number of officers and enlisted personnel from all four Services, as shown in Table V-1. The sample of retirees included in the data base is smaller than the sample of separatees in part reflecting the smaller number of retirement eligible versus pre-twenty year active duty personnel, relative to total force size. Estimates of sampling ratios were calculated by a three step process. First, the service force size at year end minus the size at the start of the year plus accessions for the year was used to estimate losses. Second, these annual estimates of separations and retirements were summed across years for '72 through '80 to obtain an estimated of total losses for the period. Finally the IRS sample sizes by Service were divided by the estimated total number of retirements or separations. The sample procedure which concentrated on a 100% sample from small cells results in the low sampling ratios for the enlisted separatees. While the sample design was structured to obtain adequate coverage of retirees and separatees, the largest number of records is for enlisted separatees.

The service regressions, presented in Tables V-2 through V-5, show similar results for most variables included in the model. However, the results show that white, college-educated, Navy officers, spending the mean time in their last pay grade, and separating or retiring from an occupation classified as "other" tended to fare better in comparison to their military peers in other Services. These findings generally hold for all occupations. Among enlisted personnel, white, high school educated Marines spending the mean time in the last pay grade and separating or retiring from an occupation classified as "other" tended to fare better

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in comparison to their military peers in other Services. This finding was not universal across occupations. Depending on the occupation, either the Navy or Air Force enlisted individual fared better all else equal.

Table V-1

IRS DATA BASE SUMMARY: SERVICES
(number of individuals, male and female)

	Army	Navy	Marines	Air Force	Total
<u>Separatees</u>					
Officers	16,013 (16%)	10,070 (19%)	4,091 (28%)	12,429 (14%)	42,603
Enlisted	29,341 (1.4%)	24,906 (2.1%)	16,957 (3.3%)	19,018 (1.5%)	90,222
Total	45,354	34,976	21,048	31,447	132,825
<u>Retirees</u>					
Officers	12,546 (36%)	10,486 (48%)	3,756 (61%)	10,917 (28%)	37,705
Enlisted	17,619 (18%)	16,028 (17%)	6,498 (37%)	21,525 (12%)	61,670
Total	30,165	26,514	10,254	32,442	99,375

The figures in parentheses are an estimate of the extent to which certain groups of individuals who had separated or retired from the military between 1972 and 1980 are included in the IRS data base. For example, 16% of the total number of officers separating from the Army between 1972 and 1981 are included in the IRS data base.

Sources: FY 1982 DoD Statistical Report on the Military Retirement System and Department of Defense, Selected Manpower Statistics Fiscal Years 1980 and 1979.

Table V-2

OFFICER MALE SEPARATEES 1981 POST-SERVICE EARNINGS
RELATIVE TO CENSUS COUNTERPARTS BY SERVICE^a

<u>Independent Variables</u>	<u>Army</u>	<u>Navy</u>	<u>Marines</u>	<u>Air Force</u>
Constant	-1028 (656)	• 5734 (986)	• 2648 (883)	-508 (820)
Length of Service:				
LOS 5	• 1554 (226) 32%	• 1799 (314) 38%	40 (280) 39%	• 764 (239) 37%
LOS 9	• -1329 (241) 22%	• -789 (378) 21%	-236 (493) 13%	-12 (298) 23%
LOS 13	• -1718 (409) 8%	• -2646 (1034) 3%	-1440 (1418) 1%	• -2263 (748) 4%
LOS 17	535 (1198) 1%	-2051 (2426) 1%	-3466 (3327) 1%	-3267 (3752) 0.1%
Education:				
Less than 12 years	2265 (15883) 0.02%	n.a.	5558 (8133) 0.2%	• 26180 (2934) 1%
12 to 15 years	• 2159 (781) 20%	5844 (3003) 2%	• 11277 (1121) 13%	• 8214 (2192) 2%
Time Since Separation:				
0 - 1 years	• -8979 (791) 10%	• -14511 (1095) 11%	• -10371 (1140) 12%	• -4030 (1412) 5%
2 - 3 years	• -4230 (589) 22%	• -9263 (848) 23%	• -4813 (890) 26%	-253 (680) 22%
4 - 6 years	• -1894 (514) 34%	• -5007 (746) 33%	• -3906 (811) 33%	-812 (573) 37%
Years in Last Grade Less Mean Time in Last Grade	• -655 (182) 0	• -744 (338) 0	291 (368) 0	• -990 (195) 0
Race: Black	• 2855 (694) 11%	1097 (1774) 3%	• 4266 (1337) 6%	• 2836 (1354) 3%
Pay Grade: 0-5 and Above	• 36273 (1159) 5%	• 23792 (1714) 5%	n.a.	• 22812 (1442) 4%

Table V-2 (Cont.)

	Army	Navy	Marines	Air Force
Military Occupation:				
Combat Arms	222 (638) 21%	603 (1077) 19%	• -1745 (885) 27%	• -3161 (1014) 10%
Aviation	• 3663 (933) 12%	738 (1138) 15%	1048 (938) 26%	1551 (853) 20%
Scientists & Engineers	174 (812) 10%	• 3114 (1178) 12%	n.a.	• 2532 (847) 20%
Administration	-659 (667) 18%	498 (1038) 22%	-1824 (950) 20%	-1553 (842) 21%
Medical and Dental	• 18078 (731) 18%	• 26354 (1159) 18%	n.a.	• 25350 (974) 15%
R^2	.2710	.2305	.0831	.2358
N	11915	7526	3247	9443
Dependent Variable Mean	4428	10000	-105	5720
Mean Census Earnings	29088	29088	29088	29088

a. Regression model with the dependent variable calculated as the difference between separatees' actual earnings (adjusted to 1982 dollars with the ECI) and estimated earnings. Estimated earnings are based on regression coefficients from Census data for full-time, male veterans with earnings greater than \$6,000.

Table V-3

OFFICER MALE RETIREES 1981 POST-SERVICE EARNINGS
RELATIVE TO CENSUS COUNTERPARTS BY SERVICE^a

Independent Variables	Army	Navy	Marines	Air Force
Constant	• -6863 (586)	-191 (910)	• -3282 (1302)	• -7313 (1063)
Length of Service After Retirement Eligibility	128 (67) 3.0 yrs	• -460 (76) 3.6 yrs	• -470 (107) 2.8 yrs	-194 (115) 2.9 yrs
Education:				
Less than 12 years	17736 (19132) 0.01%	15009 (21144) 0.01%	• 14028 (3312) 1%	• 16627 (2542) 1%
12 to 15 years	• 7277 (885) 28%	• 7658 (1064) 37%	• 10403 (966) 65%	• 9529 (1046) 6%
Time Since Separation:				
0 - 1 years	• -1393 (681) 12%	-419 (817) 12%	-181 (1203) 11%	886 (972) 8%
2 - 3 years	339 (550) 25%	187 (662) 23%	1202 (965) 27%	195 (710) 26%
4 - 6 years	287 (512) 33%	275 (588) 34%	647 (813) 35%	-350 (637) 36%
Years in Last Grade Less Mean Time in Last Grade	• -387 (143) 0	10 (143) 0	313 (170) 0	-78 (231) 0
Race: Black	• 6116 (710) 9%	9155 (8646) 0.1%	3942 (3828) 1%	• 8851 (2000) 1%
Pay Grade: O-4 and Below	• -6036 (745) 36%	• -9513 (871) 46%	• -8221 (875) 57%	• -6090 (944) 31%
Military Occupation:				
Combat Arms	• -1146 (584) 22%	• 1964 (888) 22%	• -2493 (1057) 31%	-1936 (1763) 2%
Aviation	-173 (745) 10%	-1049 (1049) 10%	-1331 (1150) 21%	-1398 (783) 25%
Scientists & Engineers	• 4291 (826) 7%	• 6731 (894) 20%	130 (2166) 2%	• 7630 (785) 25%
Administration	• 1135 (549) 29%	776 (832) 32%	-312 (921) 26%	• 2701 (770) 28%
Medical and Dental	• 19306 (873) 6%	• 22033 (1280) 5%	n.a.	• 25073 (1094) 7%
R ²	.0808	.0727	.0607	.1214
N	9623	8115	2921	8227
Dependent Variable Mean	-4437	-219	-2998	-4912
Mean Census Earnings	29088	29088	29088	29088

a. Regression model with the dependent variable calculated as the difference between retirees' actual earnings (adjusted to 1982 dollars with the ECI) and estimated earnings. Estimated earnings are based on regression coefficients from Census data for full-time, male veterans with earnings greater than \$6,000.

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Table V-4

ENLISTED MALE SEPARATEES 1981 POST-SERVICE EARNINGS
RELATIVE TO CENSUS COUNTERPARTS BY SERVICE^a

<u>Independent Variables</u>	<u>Army</u>	<u>Navy</u>	<u>Marines</u>	<u>Air Force</u>
Constant	• -1443 (338)	-272 (276)	• 1482 (490)	• 1332 (511)
Length of Service:				
LOS 5	• -945 (60) 30%	• -768 (71) 28%	• -839 (88) 31%	• -896 (104) 33%
LOS 9	• -937 (74) 24%	• -1199 (90) 21%	• -900 (129) 20%	• -597 (110) 19%
LOS 13	• -767 (109) 13%	• -1233 (142) 9%	• -1258 (221) 5%	• -1036 (181) 6%
LOS 17	-305 (295) 2%	-653 (359) 2%	• -1504 (658) 1%	169 (975) 0.2%
Education:				
Less than 12 years	• 2954 (143) 34%	• 3290 (162) 33%	• 2770 (194) 34%	• 2644 (229) 24%
Greater than 15 years	• -14305 (3408) 0.04%	n.a.	• -13254 (2273) 0.2%	• -14700 (3618) 0.1%
Time Since Separation:				
0 - 1 years	174 (241) 9%	• -671 (257) 12%	-208 (312) 10%	• -699 (326) 11%
2 - 3 years	• 1476 (181) 21%	• 434 (205) 24%	• 751 (238) 24%	• 740 (253) 25%
4 - 6 years	• 660 (161) 34%	• 420 (190) 32%	• 465 (217) 34%	395 (232) 34%
Years in Last Grade Less Mean Time in Last Grade	• 132 (60) 0	• 505 (93) 0	13 (139) 0	118 (125) 0
Race: Black	• 3111 (137) 38%	• 4007 (174) 29%	• 3156 (196) 33%	• 3782 (203) 34%
Pay Grade: E-7 and Above	• 3264 (309) 7%	• 5728 (343) 7%	• 3669 (535) 5%	3794 (2229) 0.2%

Table V-4 (Cont.)

	<u>Army</u>	<u>Navy</u>	<u>Marines</u>	<u>Air Force</u>
Military Occupation:				
Combat Arms	494 (318) 21%	1381 (301) 15%	-1040 (499) 24%	1197 (503) 10%
Electronics, Communica- tions and Intelligence	2463 (321) 19%	4656 (286) 21%	1532 (498) 22%	3321 (462) 22%
Electricians, Mechanics and Craftsmen	1210 (322) 19%	4645 (279) 24%	896 (497) 23%	1723 (460) 25%
Administration	612 (319) 24%	726 (287) 19%	32 (496) 27%	639 (461) 25%
Medical and Dental	640 (342) 12%	1187 (318) 11%	n.a.	-560 (484) 13%
R ²	.1915	.1674	.1414	.1130
N	19529	18212	12152	12948
Dependent Variable Mean	-947	2164	2052	2569
Mean Census Earnings	29088	29088	29088	29088

a. Regression model with the dependent variable calculated as the difference between separatees' actual earnings (adjusted to 1982 dollars with the ECI), and estimated earnings. Estimated earnings are based on regression coefficients from Census data for full-time, male veterans with earnings greater than \$6,000.

Table V-5
ENLISTED MALE RETIREES 1981 POST-SERVICE EARNINGS
RELATIVE TO CENSUS COUNTERPARTS BY SERVICE^a

<u>Independent Variables</u>	<u>Army</u>	<u>Navy</u>	<u>Marines</u>	<u>Air Force</u>
Constant	• -9730 (615)	• -6650 (678)	-1412 (1985)	• -5572 (1371)
Length of Service after Retirement Eligibility	• -213 (28) 2.8 yrs	• -421 (36) 2.3 yrs	• -329 (62) 2.0 yrs	• -494 (41) 2.7 yrs
Education:				
Less than 12 years	• 4345 (232) 15%	• 4288 (191) 32%	• 3300 (368) 17%	• 3970 (195) 26%
Greater than 15 years	n.a.	n.a.	n.a.	-7128 (5306) 0.02%
Time Since Separation:				
0 - 1 years	• -4001 (298) 8%	• -2654 (313) 10%	• -3509 (493) 10%	• -3768 (315) 9%
2 - 3 years	• -1479 (229) 17%	-391 (239) 22%	• -2038 (385) 20%	• -1490 (228) 20%
4 - 6 years	• -1110 (187) 30%	-280 (216) 36%	• -1199 (320) 36%	-181 (192) 36%
Years in Last Grade Less Mean Time in Last Grade	-12 (57) 0	-28 (60) 0	131 (122) 0	-76 (88) 0
Race: Black	• 5661 (156) 42%	• 6269 (215) 23%	• 5687 (345) 20%	• 6291 (183) 33%
Pay Grade: E-6 and Below	• -2608 (226) 28%	• -3138 (237) 33%	• -3556 (647) 16%	• -3026 (227) 42%
Military Occupation:				
Combat Arms	523 (609) 20%	866 (698) 16%	• -6328 (2004) 16%	1586 (1380) 10%
Electronics, Communications, and Intelligence	• 2025 (612) 19%	• 3012 (695) 19%	-3178 (1998) 19%	• 2983 (1369) 24%
Electricians, Mechanics and Craftsmen	• 1614 (605) 19%	• 3658 (685) 28%	-3368 (1990) 25%	1596 (1369) 26%
Administration	1156 (605) 27%	-19 (687) 25%	• -5245 (1987) 40%	683 (1369) 29%
Medical and Dental	857 (626) 13%	819 (718) 10%	n.a.	-188 (1381) 10%
R ²	.1412	.1454	.1067	.1195
N	13124	12792	4856	17250
Dependent Variable Mean	-7746	-4507	-6633	-4256
Mean Census Earnings	29088	29088	29088	29088

a. Regression model with the dependent variable calculated as the difference between retirees' actual earnings (adjusted to 1982 dollars with the ECI), and estimated earnings. Estimated earnings are based on regression coefficients from Census data for full-time, male veterans with earnings greater than \$6,000.

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APPENDIX VI: 1979, 1980 AND 1981 COMPARISONS

For many of the individuals in the analysis files, earnings data is available for 1979 and 1980, in addition to 1981. All of the estimations described in the report used 1981 earnings. Tables VI-1 through VI-4 below allow a comparison of the results for 1979, 1980, and 1981 earnings where the same model is used for each year. The actual earnings used to calculate the earnings differential were adjusted to 1982 dollars by the appropriate Employment Cost Index factor. The Census equation used to calculate the earnings differential is the one for male veterans working full time and having earnings greater than \$6,000. The time since separation variable was recalculated prior to each run so that it would be measured as the time from separation to the earnings year. All other variables in the model were not redefined since they are unaffected by the earnings year being analyzed.

The tables in general below show few qualitative differences among the coefficients when the model is estimated for other than 1981. This implies that the findings discussed in Chapter III are not greatly affected by the earnings year chosen for the analysis. Chapter VI contains the results of longitudinal analysis using different years' earnings data.

Table VI-1
OFFICER MALE SEPARATEES POST-SERVICE EARNINGS
RELATIVE TO CENSUS COUNTERPARTS^a

<u>Independent Variables</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>
Constant	• 5628 (550)	• 5384 (397)	• 5011 (322)
Length of Service:			
LOS 5	• 1518 (169) 35%	• 1392 (144) 35%	• 1065 (130) 36%
LOS 9	• -1556 (211) 20%	• -1441 (182) 20%	• -1264 (165) 21%
LOS 13	• -2309 (395) 5%	• -1915 (361) 5%	• -2383 (337) 5%
LOS 17	514 (1159) 1%	380 (1133) 1%	296 (1034) 1%
Education:			
Less than 12 years	• 40784 (4143) 0.2%	• 44835 (3901) 0.1%	• 30869 (2848) 0.2%
12 to 15 years	1027 (627) 11%	-67 (571) 9%	• 1978 (514) 10%
Time Since Separation:			
0 - 1 years	• -9783 (638) 14%	• -9732 (528) 12%	• -8762 (526) 9%
2 - 3 years	• -6515 (548) 28%	• -4658 (424) 25%	• -4299 (376) 23%
4 - 6 years	• -3579 (510) 44%	• -3577 (385) 38%	• -2666 (332) 35%
Years in Last Grade Less Mean Time in Last Grade	• -811 (141) 0	• -799 (120) 0	• -635 (106) 0
Race: Black	• 1690 (687) 7%	976 (611) 6%	442 (565) 6%
Pay Grade 1: 0-5 and Above for LOS less than 17	• 56000 (904) 4%	• 50890 (780) 4%	• 48747 (712) 4%
Pay Grade 2: 0-5 and Above for LOS greater than or equal to 17	• 31119 (12142) 0.02%	16811 (11451) 0.02%	20610 (12333) 0.01%
R ²	.1759	.1684	.1635
N	25888	29499	32131
Dependent Variable Mean	5047	5452	5655
Mean Census Earnings	29088	29088	29088

a. Regression model with the dependent variable calculated as the difference between separatees' actual earnings (adjusted to 1982 dollars with the ECI) and estimated earnings. Estimated earnings are based on regression coefficients from Census data for full-time, male veterans with earnings greater than \$6,000.

Table VI-2
OFFICER MALE RETIREES POST-SERVICE EARNINGS
RELATIVE TO CENSUS COUNTERPARTS^a

<u>Independent Variables</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>
Constant	• -3204 (482)	• -2517 (409)	• -1894 (290)
Length of Service After Retirement Eligibility	• -274 (49) 3.2 yrs	• -283 (44) 3.2 yrs	• -262 (41) 3.1 yrs
Education:			
Less than 12 years	• 17422 (3325) 0.2%	• 18044 (3071) 0.2%	• 13731 (2100) 0.3%
12 to 15 years	• 7880 (533) 30%	• 7431 (483) 29%	• 7990 (447) 28%
Time Since Separation:			
0 - 1 years	-344 (571) 15%	• 1201 (443) 27%	-117 (432) 11%
2 - 3 years	221 (508) 29%	• 844 (424) 38%	289 (335) 25%
4 - 6 years	879 (476) 43%	582 (463) 22%	288 (309) 34%
Years in Last Grade Less Mean Time in Last Grade	-84 (87) 0	• -166 (79) 0	-45 (72) 0
Race: Black	• 3229 (838) 3%	• 3592 (729) 3%	• 3773 (669) 3%
Pay Grade: O-4 and Below	• -8180 (463) 40%	• -7971 (411) 40%	• -7861 (374) 40%
R ²	.0204	.0214	.0223
N	22652	26353	28886
Dependent Variable Mean	-4402	-3504	-3242
Mean Census Earnings	29088	29088	29088

a. Regression model with the dependent variable calculated as the difference between retirees' actual earnings (adjusted to 1982 dollars with the ECI), and estimated earnings. Estimated earnings are based on regression coefficients from Census data for full-time, male veterans with earnings greater than \$6,000.

Table VI-3
**ENLISTED MALE SEPARATEES POST-SERVICE EARNINGS
 RELATIVE TO CENSUS COUNTERPARTS^a**

<u>Independent Variables</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>
Constant	• 2598 (160)	• 2016 (122)	• 1607 (109)
Length of Service:			
LOS 5	• -940 (43) 30%	• -887 (39) 30%	• -868 (37) 31%
LOS 9	• -992 (55) 21%	• -1021 (51) 21%	• -957 (48) 21%
LOS 13	• -1099 (88) 9%	• -1041 (80) 9%	• -1052 (75) 9%
LOS 17	• -603 (289) 1%	• -769 (271) 1%	• -818 (266) 1%
Education:			
Less than 12 years	• 3154 (100) 34%	• 2810 (91) 33%	• 2727 (87) 32%
Greater than 15 years	• -12509 (1759) 0.1%	• -10067 (1698) 0.1%	• -13564 (1647) 0.1%
Time Since Separation:			
0 - 1 years	-112 (175) 14%	276 (145) 12%	-127 (139) 11%
2 - 3 years	193 (152) 29%	• 867 (117) 26%	• 998 (106) 23%
4 - 6 years	-18 (144) 44%	• 293 (108) 38%	• 448 (96) 33%
Years in Last Grade Less Mean Time in Last Grade	79 (46) 0	• 109 (42) 0	• 111 (41) 0
Race: Black	• 2882 (100) 33%	• 2962 (91) 34%	• 3165 (85) 34%
Pay Grade 1: E-7 and Above for LOS less than 17	• 3214 (253) 4%	• 3636 (230) 4%	• 4230 (214) 5%
Pay Grade 2: E-7 and Above for LOS greater than or equal to 17	• 2697 (805) 1%	• 4029 (755) 1%	• 5291 (737) 0.5%
R ²	.1464	.1438	.1385
N	50147	56635	62841
Dependent Variable Mean	1761	1528	1259
Mean Census Earnings	29088	29088	29088

a. Regression model with the dependent variable calculated as the difference between separatees' actual earnings (adjusted to 1982 dollars with the ECI) and estimated earnings. Estimated earnings are based on regression coefficients from Census data for full-time, male veterans with earnings greater than \$6,000

Table VI-4
**ENLISTED MALE RETIREES POST-SERVICE EARNINGS
 RELATIVE TO CENSUS COUNTERPARTS^a**

<u>Independent Variables</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>
Constant	• -6594 (171)	• -6523 (134)	• -6303 (117)
Length of Service After Retirement Eligibility	• -395 (20) 2.5 yrs	• -365 (19) 2.6 yrs	• -346 (18) 2.6 yrs
Education:			
Less than 12 years	• 4410 (118) 27%	• 4586 (114) 25%	• 4647 (110) 24%
Greater than 15 years	n.a.	n.a.	-6207 (4961) 0.01%
Time Since Separation:			
0 - 1 years	• -2466 (205) 12%	• -2244 (178) 10%	• -2972 (170) 9%
2 - 3 years	• -813 (171) 27%	• -449 (137) 24%	• -676 (127) 20%
4 - 6 years	• -393 (157) 48%	-223 (120) 40%	-130 (108) 34%
Years in Last Grade Less Mean Time in Last Grade	• -80 (33) 0	• -99 (31) 0	• -90 (29) 0
Race: Black	• 5529 (112) 31%	• 5575 (105) 31%	• 5636 (100) 31%
Pay Grade: E-6 and Below	• -2065 (127) 35%	• -2191 (122) 34%	• -2305 (117) 33%
R ²	.1040	.1041	.1093
N	39522	44485	48022
Dependent Variable Mean	-6105	-5721	-5517
Mean Census Earnings	29088	29088	29088

a. Regression model with the dependent variables calculated as the difference between retirees' actual earnings (adjusted to 1982 dollars with the ECI), and estimated earnings. Estimated earnings are based on regression coefficients from Census data for full-time, male veterans with earnings greater than \$6,000.

APPENDIX VII: ALTERNATIVE SPECIFICATIONS

Several specifications of the model were tried in the course of our research. This appendix identifies some of the variations from the model described in Chapter III.

The results reported in Chapter III were based on using as the dependent variable an earnings differential, defined as the difference between ECI-adjusted actual earnings and ECI-adjusted imputed earnings. The imputed earnings were based upon an equation estimated using Census data for male veterans working full time with earnings greater than \$6,000.

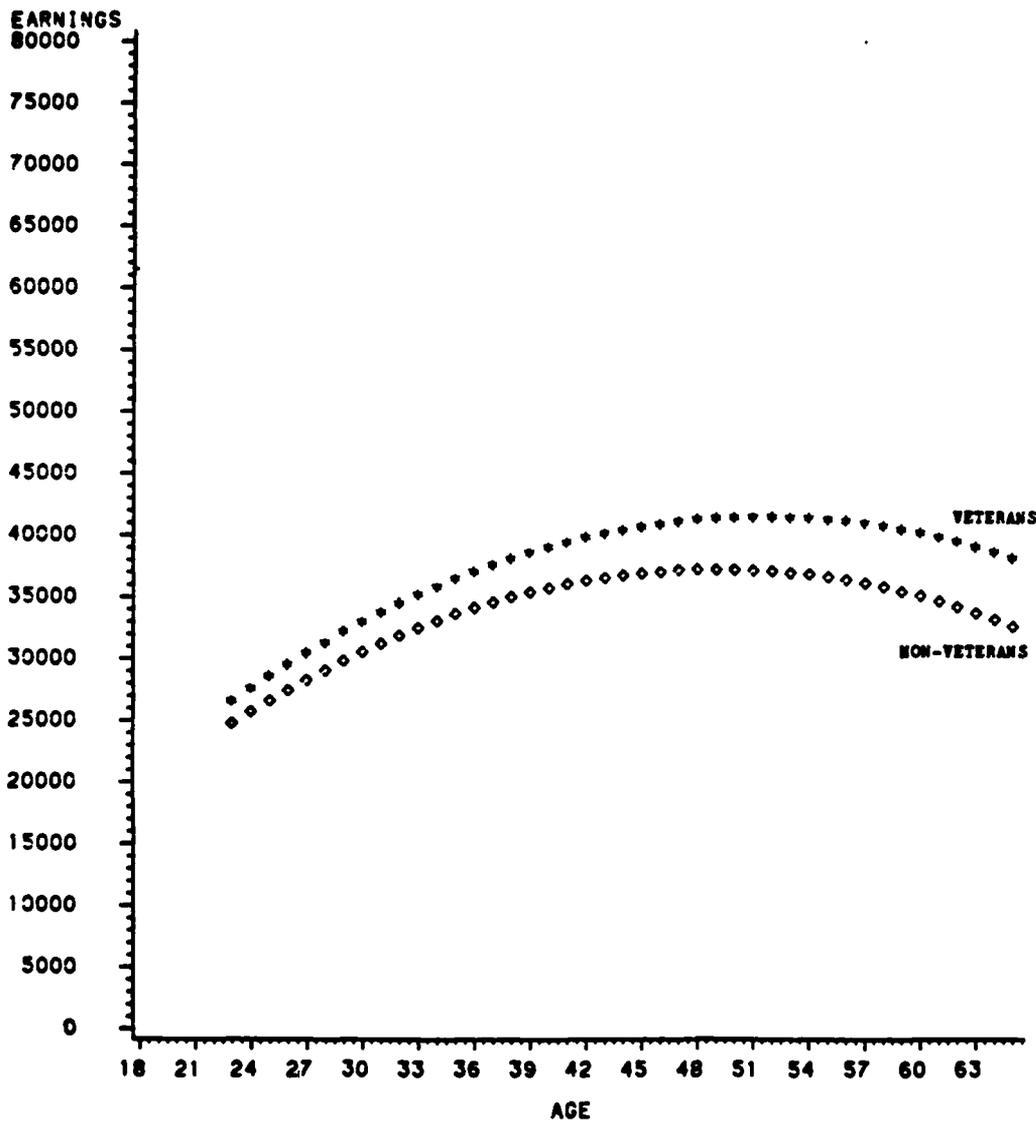
The purpose of using veterans only for the Census comparison group was to ensure that the Census comparison group had passed the same tests that the IRS sample had. We investigated the implications of this stratification of the Census comparison group in the following ways. First, we estimated the coefficients of the determinants of Census earnings for veterans only, non-veterans only, and for both combined (using male full-time workers in all three cases). These regression coefficients are contained in Appendix III. Figures 1 and 2 show the age-earning plots for college graduates and high-school graduates derived from the Census regression for veterans and non-veterans. These figures show differences in earnings level (the constant term plus the effect of the level of education) as well as differences in the rate of growth of earnings as age increases to the maximum earnings age of

APPENDIX Q

Figure 1

CENSUS EARNINGS

VETERAN VS. NON-VETERAN COLLEGE GRADUATES

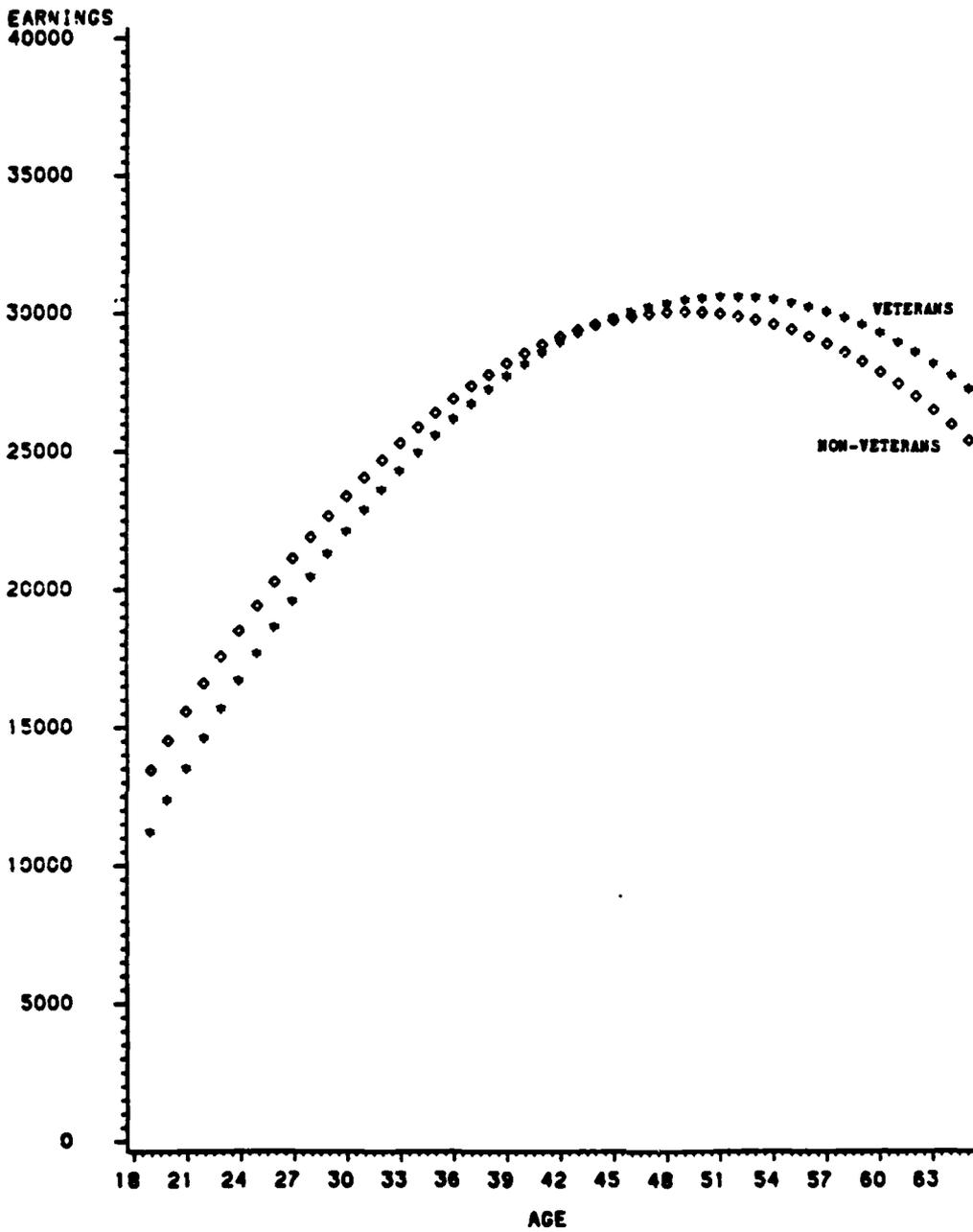


APPENDIX Q

Figure 2

CENSUS EARNINGS

VETERAN VS. NON-VETERAN HIGH SCHOOL GRADUATES



about 50 (the effects of age and age-squared).^{1/} The regression coefficients for these two groups are significantly different from each other (F=776). This indicates that for 1979 earnings, veteran status did make a difference in the determinants of earnings that we were able to measure for our sample.

However, in order to test this definition of a Census comparison group further, we performed the following analysis. The major purpose in analyzing earnings differentials between former military personnel and the non-military work force is to assess the competitive marketplace that the military personnel face as they decide to leave (or not) the service, and how those who have left the service have fared in this marketplace. One might argue, then, that a reasonable comparison group would be all Census full-time workers, veterans and non-veterans, since this group together constitutes the marketplace that the military personnel face. Therefore, we analyzed earnings differentials for the IRS sample compared to the estimated average Census earnings (given age, education, and race) for veteran and non-veteran full-time workers combined.

Tables VII-1 through VII-4 present the results of this alternative specification of the comparison group. These tables include the estimation results for the "veterans only" model. The alternative specification

^{1/} A present value comparison through age 65 of the veteran and non-veteran earnings streams shows larger present values for veterans than non-veterans in the college graduates case (as is obvious from Figure 1) and shows larger present values for non-veterans than veterans for high-school graduates at all three discount rates.

Discount Rate	Present Values			
	Non-Veteran College Graduates	Veteran College Graduates	Non-Veteran High-School Graduates	Veteran High-School Graduates
3%	\$814,419	\$895,963	\$623,510	\$606,613
5%	594,319	650,892	435,939	418,501
10%	331,230	359,901	225,255	210,115

does not yield substantially different results. Figures 1 and 2, however, do suggest that there may well be a cohort effect, as was also suggested by our longitudinal analysis presented in Chapter VI. This is seen most clearly in the high-school graduates comparison of veterans' and non-veterans' earnings. Since the Census data represents a cross-section of earnings over different ages at one point in time, the differential rates of change and levels of earnings could be due either to different earnings growth patterns as veterans and non-veterans grow older, or to different characteristics of individuals entering and leaving the service more recently (younger ages in general) and less recently (older ages in general). Thus for the Census veterans, the effect of age on earnings may reflect in part a cohort effect over more cohorts (more variety of entrance and exit dates from the service) than even exist in our IRS sample. The result of this would be that the earnings differential itself between the IRS sample and the Census sample may depend on age to the extent that the difference between the cohorts of the two samples is a function of age. However, multicollinearity among age, time since separation, and length of service in the IRS sample resulted in insignificant coefficients for age and age-squared when they were included in the regression equation for earnings differentials. For this reason, we left age variables out of the equation, constraining the coefficients of age and age-squared to match the Census sample.

Having run our regressions without age and age-squared as variables in the earnings differentials equation, we tested the residuals of our differentials regressions to see if they depended on age. When we ran regressions of the residuals with age and age-squared as independent variables, in each of the four cases (officer separatees and retirees, enlisted separatees and retirees) the coefficients of both age and age-squared were significantly different from zero, with t-statistics ranging from 5 to 19. Age and age-squared appear to be more significant for the officer separatees ($t=19$) than for the other three groups ($t=5$ to 7), with an R^2 for officer separatees of .012 compared to R^2 of .002 for the other three. Figures 3 and 4 show the relationship between age and the residuals for officers and enlisted personnel. The largest effect is, again, that for officer separatees, as shown in Figure 3.

Table VII-1
OFFICER MALE SEPARATEES 1981 POST-SERVICE EARNINGS
RELATIVE TO CENSUS COUNTERPARTS^a

<u>Independent Variables</u>	<u>Veterans & Non Vets</u>	<u>Veterans Only</u>
Constant	• 6674 (322)	• 5011 (322)
Length of Service:		
LOS 5	• 1105 (131) 36%	• 1065 (130) 36%
LOS 9	• -1236 (165) 21%	• -1264 (165) 21%
LOS 13	• -2345 (337) 5%	• -2383 (337) 5%
LOS 17	• 307 (1034) 1%	• 296 (1034) 1%
Education:		
Less than 12 years	• 29476 (2850) 0.2%	• 30869 (2848) 0.2%
12 to 15 years	• -165 (514) 10%	• 1978 (514) 10%
Time Since Separation:		
0 - 1 years	• -9138 (527) 9%	• -8762 (526) 9%
2 - 3 years	• -4587 (377) 23%	• -4299 (376) 23%
4 - 6 years	• -2822 (332) 35%	• -2666 (332) 35%
Years in Last Grade Less Mean Time in Last Grade	• -612 (106) 0	• -635 (106) 0
Race: Black	• -6 (566) 6%	• 442 (565) 6%
Pay Grade 1: O-5 and Above for LOS less than 17	• 49064 (713) 4%	• 48747 (712) 4%
Pay Grade 2: O-5 and Above for LOS greater or equal to 17	• 20782 (12339) 0.01%	• 20610 (12333) 0.01%
R ²	.1661	.1635
N	32131	32131
Dependent Variable Mean	7044	5655
Mean Census Earnings	26133	29088

a. Regression model with dependent variable calculated as the difference between separatees' actual earnings (adjusted to 1982 dollars with the ECI) and estimated earnings. Estimated earnings are based on regression coefficients from Census data for: (1) full-time, male veterans and non-veterans with earnings greater than \$6,000, and (2) full-time, male veterans with earnings greater than \$6,000.

Table VII-2
OFFICER MALE RETIREES 1981 POST-SERVICE EARNINGS
RELATIVE TO CENSUS COUNTERPARTS^a

<u>Independent Variables</u>	<u>Veterans & Non Vets</u>	<u>Veterans Only</u>
Constant	226 (290)	* -1894 (290)
Length of Service After Retirement Eligibility	* -261 (41) 3.1 yrs	* -262 (41) 3.1 yrs
Education:		
Less than 12 years	* 12301 (2100) 0.3%	* 13731 (2100) 0.3%
12 to 15 years	* 5916 (447) 28%	* 7990 (447) 28%
Time Since Separation:		
0 - 1 years	-172 (432) 11%	-117 (432) 11%
2 - 3 years	263 (335) 25%	289 (335) 25%
4 - 6 years	288 (309) 34%	288 (309) 34%
Years in Last Grade Less Mean Time in Last Grade	-45 (72) 0	-45 (72) 0
Race: Black	* 3350 (669) 3%	* 3773 (669) 3%
Pay Grade: O-4 and Below	* -7901 (374) 40%	* -7861 (374) 40%
R ²	.0194	.0223
N	28886	28886
Dependent Variable Mean	-1754	-3242
Mean Census Earnings	26133	29088

a. Regression model with the dependent variable calculated as the difference between retirees' actual earnings (adjusted to 1982 dollars with the ECI), and estimated earnings. Estimated earnings are based on regression coefficients from Census data for: 1) full-time, male veterans and non-veterans with earnings greater than \$6,000 and 2) full-time, male veterans with earnings greater than \$6,000.

Table VII-3

ENLISTED MALE SEPARATEES 1981 POST-SERVICE EARNINGS
RELATIVE TO CENSUS COUNTERPARTS^a

<u>Independent Variables</u>	<u>Veterans & Non Vets</u>	<u>Veterans Only</u>
Constant	• 877 (109)	• 1607 (109)
Length of Service:		
LOS 5	• -773 (37) 31%	• -868 (37) 31%
LOS 9	• -911 (48) 21%	• -957 (48) 21%
LOS 13	• -1006 (75) 9%	• -1052 (75) 9%
LOS 17	• -791 (266) 1%	• -818 (266) 1%
Education:		
Less than 12 years	• 3338 (87) 32%	• 2727 (87) 32%
Greater than 15 years	• -11296 (1645) 0.1%	• -13564 (1647) 0.1%
Time Since Separation:		
0 - 1 years	• -628 (139) 11%	-127 (139) 11%
2 - 3 years	• 611 (106) 23%	• 998 (106) 23%
4 - 6 years	• 245 (96) 33%	• 448 (96) 33%
Years in Last Grade Less Mean Time in Last Grade	• 119 (41) 0	• 111 (41) 0
Race: Black	• 2771 (86) 34%	• 3165 (86) 34%
Pay Grade 1: E-7 and Above for LOS less than 17	• 4303 (214) 5%	• 4230 (214) 5%
Pay Grade 2: E-7 and Above for LOS greater than or equal to 17	• 5292 (737) 0.5%	• 5291 (737) 0.5%
R ²	.1282	.1385
N	62841	62841
Dependent Variable Mean	627	1259
Mean Census Earnings	26133	29088

a. Regression model with the dependent variable calculated as the difference between separatees' actual earnings (adjusted to 1982 dollars with the ECI) and estimated earnings. Estimated earnings are based on regression coefficients from Census data for: (1) full-time, male veterans and non-veterans with earnings greater than \$6,000, and (2) full-time, male veterans with earnings greater than \$6,000.

Table VII-4
ENLISTED MALE RETIREES 1981 POST-SERVICE EARNINGS
RELATIVE TO CENSUS COUNTERPARTS^a

<u>Independent Variables</u>	<u>Veterans & Non Vets</u>	<u>Veterans Only</u>
Constant	• -6302 (117)	• -6303 (117)
Length of Service After Retirement Eligibility	• -337 (18) 2.6 yrs	• -346 (18) 2.6 yrs
Education:		
Less than 12 years	• 5299 (110) 24%	• 4647 (110) 24%
Greater than 15 years	-4026 (4960) 0.01%	-6207 (4961) 0.01%
Time Since Separation:		
0 - 1 years	• -3096 (170) 9%	• -2972 (170) 9%
2 - 3 years	• -757 (127) 20%	• -676 (127) 20%
4 - 6 years	-162 (108) 34%	-130 (108) 34%
Years in Last Grade Less Mean Time in Last Grade	• -91 (29) 0	• -90 (29) 0
Race: Black	• 5224 (100) 31%	• 5636 (100) 31%
Pay Grade: E-6 and Below	• -2306 (117) 33%	• -2305 (117) 33%
R ²	.1108	.1093
N	48022	48022
Dependent Variable Mean	-5505	-5517
Mean Census Earnings	29088	29088

a. Regression model with the dependent variable calculated as the difference between retirees' actual earnings (adjusted to 1982 dollars with the ECI), and estimated earnings. Estimated earnings are based on regression coefficients from Census data for: 1) full-time, male veterans and non-veterans with earnings greater than \$6,000, and 2) full-time, male veterans with earnings greater than \$6,000.

The effect of the bias illustrated in Figure 3 is to overestimate the earnings differential for officer separatees who are fairly young (i.e., officer separatees with short lengths of service and times since separation). Thus relatively young officer separatees suffer a somewhat greater earnings penalty than indicated in the body of the report. Of course, the R^2 for this relationship is only .012, so much of the variation in the residuals is still left unexplained. Also, the largest effects of age on residuals are in the younger tails of the officer separatee and enlisted retiree groups, which have relatively few members and for which the estimated residual may be particularly far from the actual residual. Given that we were unable to separate the effects of age from those of length of service and time since separation in our differentials regressions, we chose to investigate the nature of the bias and constrain the effects of age on earnings for the two samples to be the same.

Given the fact that for most individuals in the IRS sample, length of service plus time since separation represented the individual's experience in the labor force, we also tried several different specifications of the earnings differentials equations. A number of different specifications of the length of service variable in the model were tried. These included specifying length of service for separatees as a continuous variable rather than as a spline function. Length of service squared was also included in some versions of the model. However, as discussed in Chapter III, the LOS variable on the IRS data set did not allow fine distinctions to be made.

Time since separation was also tried as a continuous variable, and time since separation squared appeared in earlier versions of the model. In general, these alternative specifications of the independent variables did not explain more of the variation in earnings differentials and did not change qualitative conclusions of the model, which were judged easier to understand with the specification presented in Chapter III.

The IRS data set contains wage and salary earnings truncated at \$150,000 for those individuals in the sample. The Census data set, on the other hand, has wage and salary earnings truncated at \$75,000 (\$95,925

Figure 3
RESIDUALS VS. AGE
OFFICERS

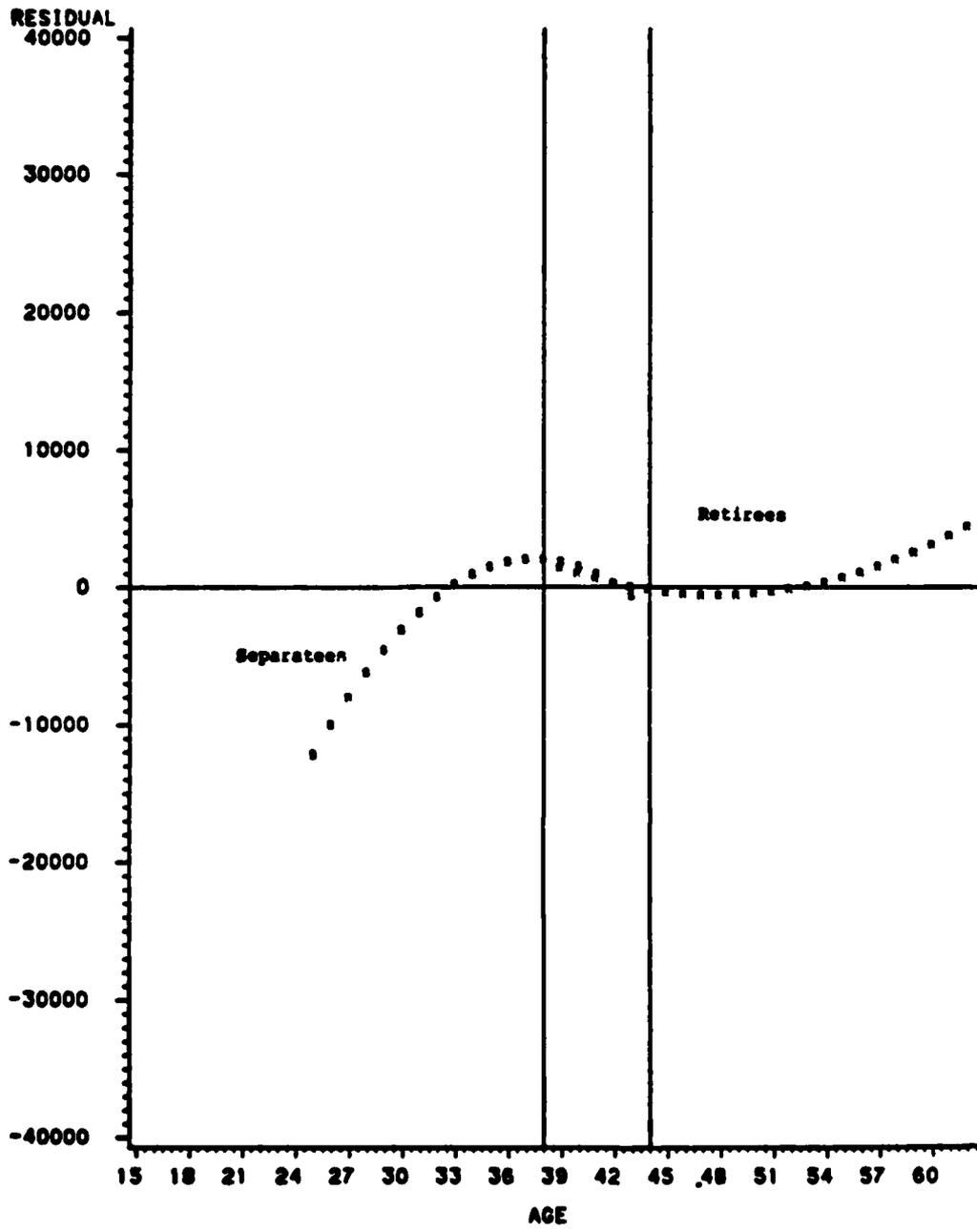
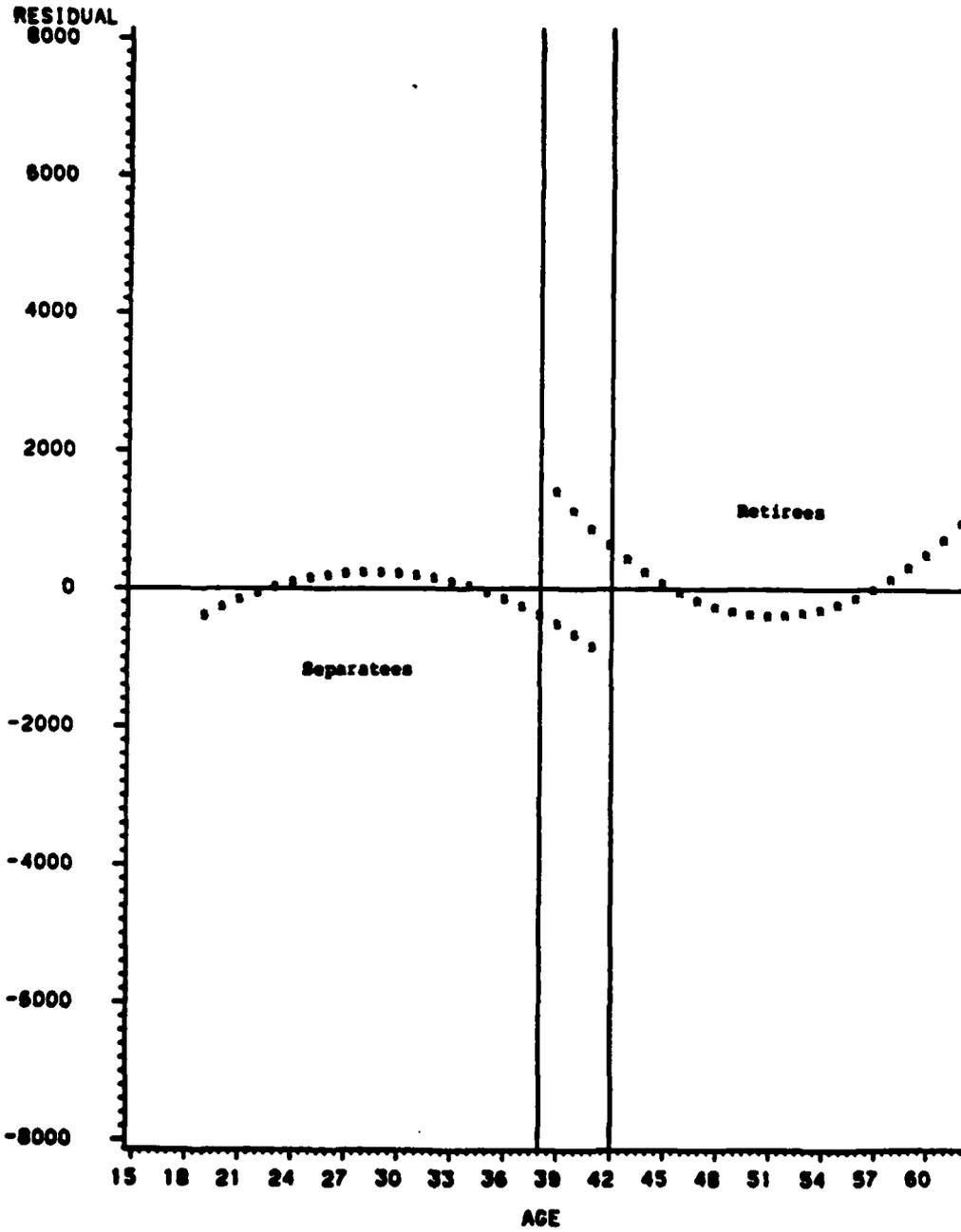


Figure 4

RESIDUALS VS. AGE ENLISTED PERSONNEL



in 1982 dollars). The comparisons we have done in this report may thus tend to overestimate the earnings differential for those earning more than \$75,000 (\$95,925 in 1982 dollars). In order to get a better idea of the nature of this bias, we estimated earnings differentials for our four major groups (officer separatees and retirees, and enlisted separatees and retirees) with the IRS earnings truncated to \$95,925 in 1982 dollars. The results are presented in Tables VII-5 through VII-8.

While comparing the IRS earnings truncated at \$150,000 with Census earnings will probably tend to overestimate earnings differentials, comparing IRS earnings truncated at \$75,000 with Census earnings may either be overestimating or underestimating the earnings differential. All earnings greater than \$95,925 in 1982 dollars are reported as \$95,925 for each sample, so average earnings for the Census sample are biased downward. Whether or not the resulting comparison tends to overestimate or underestimate the earnings differential thus depends on the differences between the IRS sample and the Census sample for those earning more than \$95,925, which we don't know. However, we do know that of 32,131 male officer separatees with full-time earnings in the IRS sample, 1638, or about 5%, had 1981 earnings greater than \$95,925 in 1982 dollars. Thus the differences in the regression coefficients for officer separatees presented in Table VII-5 (where most of the differences are) result from changes in earnings reported for the highest 5% of the earners.

Figures 5 and 7 contain the age-earnings plots for these "truncated" regressions, and Figures 6 and 8 contain the "untruncated" age-earnings plots, for comparison. Again, the only discernible difference is for officer separatees, for whom the estimated earnings are lower in Figure 5 than in Figure 6. This is not surprising since the highest earnings level that can be obtained is \$95,925, rather than \$150,000. Figures 9 and 11 show the time since separation effect for different LOS groups with the truncation, and can be compared to Figures 10 and 12. The results again are that for officer separatees, the estimated earnings differentials are lower, as shown by the lower curves on Figure 9 compared to those on Figure 10.

Table VII-5

**OFFICER MALE SEPARATEES 1981 POST-SERVICE EARNINGS
RELATIVE TO CENSUS COUNTERPARTS^a: DATA SETS
TRUNCATED AT \$75,000**

Independent Variables

Constant	• 3439 (249)
Length of Service:	
LOS 5	• 668 (101) 36%
LOS 9	• -984 (127) 21%
LOS 13	• -2368 (260) 5%
LOS 17	218 (800) 1%
Education:	
Less than 12 years	• 26,492 (2204) 0.2%
12 to 15 years	• 3399 (397) 10%
Time Since Separation:	
0 - 1 years	• -6648 (407) 9%
2 - 3 years	• -2904 (291) 23%
4 - 6 years	• -1945 (257) 35%
Years in Last Grade Less Mean Time in Last Grade	• -443 (82) 0
Race: Black	1252 (438) 6%
Pay Grade 1: 0-5 and Above for LOS less than 17	• 34225 (551) 4%
Pay Grade 2: 0-5 and Above for LOS greater than or equal to 17	• 20028 (9544) 0.01%
R ²	.1422
N	32131
Dependent Variable Mean	3801
Mean Census Earnings	29088

a. Regression model with the dependent variable calculated as the difference between separatees' actual earnings (adjusted to 1982 dollars with the ECI) and estimated earnings. Estimated earnings are based on regression coefficients from Census data for full-time, male veterans with earnings greater than \$6,000.

Table VII-6

OFFICER MALE RETIREES 1981 POST-SERVICE EARNINGS
 RELATIVE TO CENSUS COUNTERPARTS^a: DATA SETS
 TRUNCATED AT \$75,000

Independent Variables

Constant	• -2957 (253)
Length of Service After Retirement Eligibility	• -239 (36) 3.1 years
Education:	
Less than 12 years	• 13078 (1837) 0.3%
12 to 15 years	• 8200 (391) 28%
Time Since Separation:	
0 - 1 years	244 (378) 11%
2 - 3 years	524 (293) 25%
4 - 6 years	208 (270) 34%
Years in Last Grade Less Mean Time in Last Grade	-13 (63) 0
Race: Black	• 4028 (586) 3%
Pay Grade: O-4 and Below	• -7156 (328) 40%
R ²	.0269
N	28886
Dependent Variable Mean	-3817
Mean Census Earnings	29088

a. Regression model with the dependent variable calculated as the difference between retirees' actual earnings (adjusted to 1982 dollars with the ECI), and estimated earnings. Estimated earnings are based on regression coefficients from Census data for full-time, male veterans with earnings greater than \$6,000.

Table VII-7

ENLISTED MALE SEPARATEES 1981 POST-SERVICE EARNINGS
RELATIVE TO CENSUS COUNTERPARTS^a: DATA SETS
TRUNCATED AT \$75,000

Independent Variables

Constant	• 1571 (107)
Length of Service:	
LOS 5	• -865 (36) 31%
LOS 9	• -958 (47) 21%
LOS 13	• -1044 (74) 9%
LOS 17	• -821 (262) 1%
Education:	
Less than 12 years	• 2739 (86) 32%
Greater than 15 years	• -13548 (1626) 0.1%
Time Since Separation:	
0 - 1 years	-112 (133) 11%
2 - 3 years	• 1018 (105) 23%
4 - 6 years	• 455 (95) 33%
Years in Last Grade Less Mean Time in Last Grade	• 109 (40) 0
Race: Black	• 3178 (85) 34%
Pay Grade 1: E-7 and Above for LOS less than 17	• 4242 (212) 5%
Pay Grade 2: E-7 and Above for LOS greater than or equal to 17	• 5290 (728) 0.5%
R ²	.1417
N	62841
Dependent Variable Mean	1246
Mean Census Earnings	29088

a. Regression model with the dependent variable calculated as the difference between separatees' actual earnings (adjusted to 1982 dollars with the ECI) and estimated earnings. Estimated earnings are based on regression coefficients from Census data for full-time, male veterans with earnings greater than \$6,000.

Table VII-8

ENLISTED MALE RETIREES 1981 POST-SERVICE EARNINGS
RELATIVE TO CENSUS COUNTERPARTS^a: DATA SETS
TRUNCATED AT \$75,000

Independent Variables

Constant	• -6309 (115)
Length of Service After Retirement Eligibility	• -349 (17) 2.6 years
Education:	
Less than 12 years	• 4646 (108) 24%
Greater than 15 years	-6181 (4877) 0.01%
Time Since Separation:	
0 - 1 years	• -2957 (167) 9%
2 - 3 years	• -670 (125) 20%
4 - 6 years	-138 (106) 34%
Years in Last Grade Less Mean Time in Last Grade	• -83 (28) 0
Race: Black	• 5638 (98) 31%
Pay Grade: E-6 and Below	• -2319 (115) 33%
R ²	.1126
N	48022
Dependent Variable Mean	-5535
Mean Census Earnings	29088

- a. Regression model with the dependent variable calculated as the difference between retirees' actual earnings (adjusted to 1982 dollars with the ECI), and estimated earnings. Estimated earnings are based on regression coefficients from Census data for full-time, male veterans with earnings greater than \$6,000.

As a final investigation into the effects of truncating the IRS data at \$95,925 in 1982 dollars, we calculated the present values of the earnings streams represented in Figure 5, similar to those presented in Chapter IV. The effect, as could be predicted from Figure 5, was to lower the present value of the eight-year LOS career path relative to the other career paths, so that even at a discount rate of 10%, a 30-year length-of-service career path had the highest present value once the military career was chosen. Before entering the service (at age 23), the Census average earnings stream had a higher present value than any of the other career paths. These results are not surprising, since the effect of truncating earnings greater than \$95,925 to \$95,925 is to lower these earnings relative to the others in the sample. This tends to lower the eight-year LOS officers' earnings relative to the rest of the sample since they had the highest wage and salary earnings in the IRS sample.

Because of these problems in interpreting the bias of the results when the IRS sample is truncated below \$150,000, we have presented both sets of results.

Finally, we used the IRS data base to estimate a model similar to that of Goldberg and Warner as described in their paper "Earnings of Military Veterans." Our specification uses the natural logarithm of ECI-adjusted earnings as the dependent variable. The estimation results are presented in Tables VII-9 through VII-12 below. This type of model is designed to answer a different set of questions from our model of earnings differentials, since it analyzes the sources of variation in post-service earnings within a group of former military members who separated in the same year but had different military characteristics. Our IRS sample seems to confirm the results they found for enlisted personnel. The model presented in this report, however, is designed more to analyze the relationship (and the military characteristics' determinants of that relationship) of former military members' earnings to the labor market into which they enter upon separation or retirement.

Figure 5

POST-SERVICE EARNINGS

OFFICERS

IRS TRUNCATED AT \$75,000

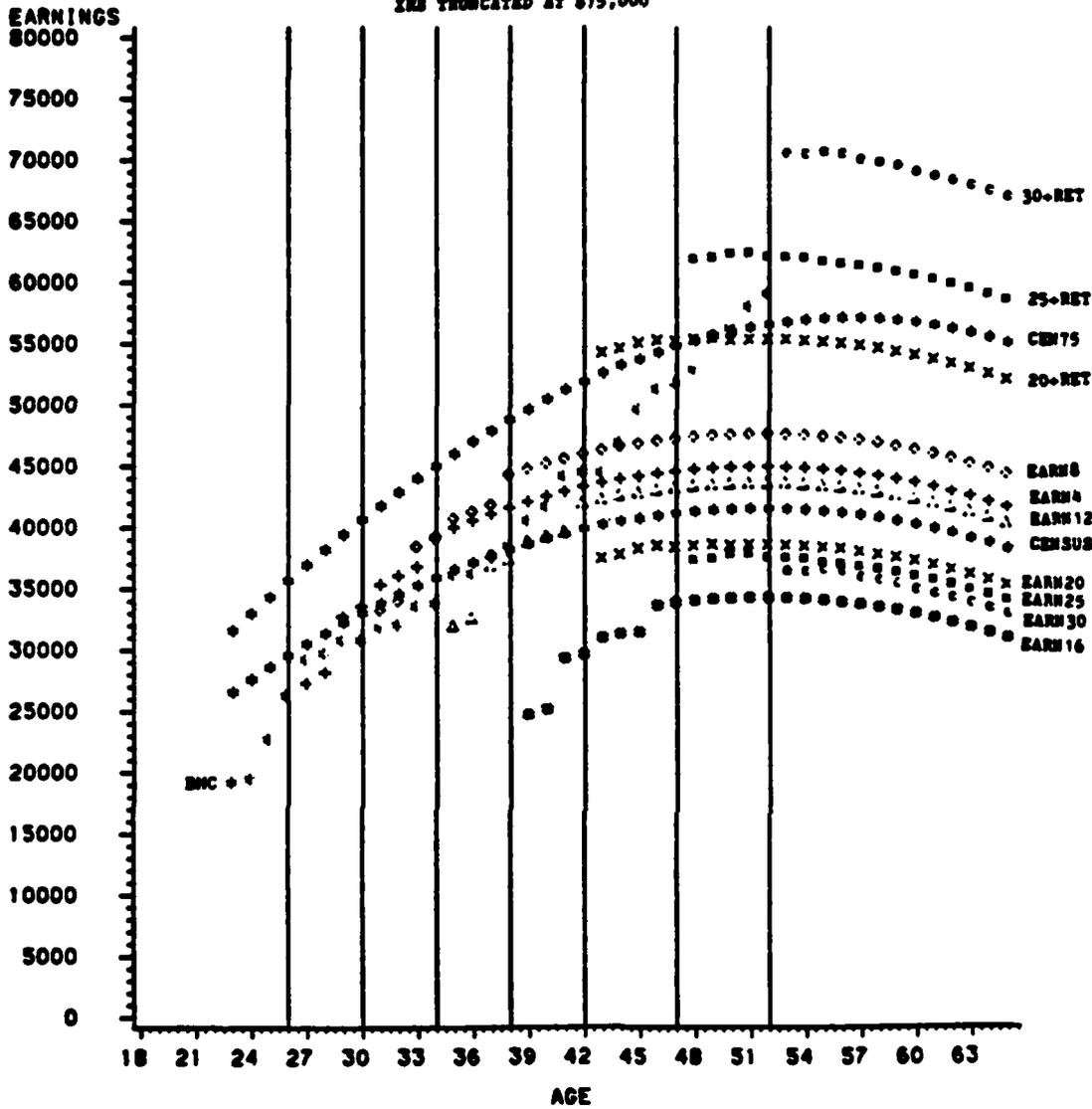


Figure 6

POST-SERVICE EARNINGS OFFICERS

IRS TRUNCATED AT \$150,000

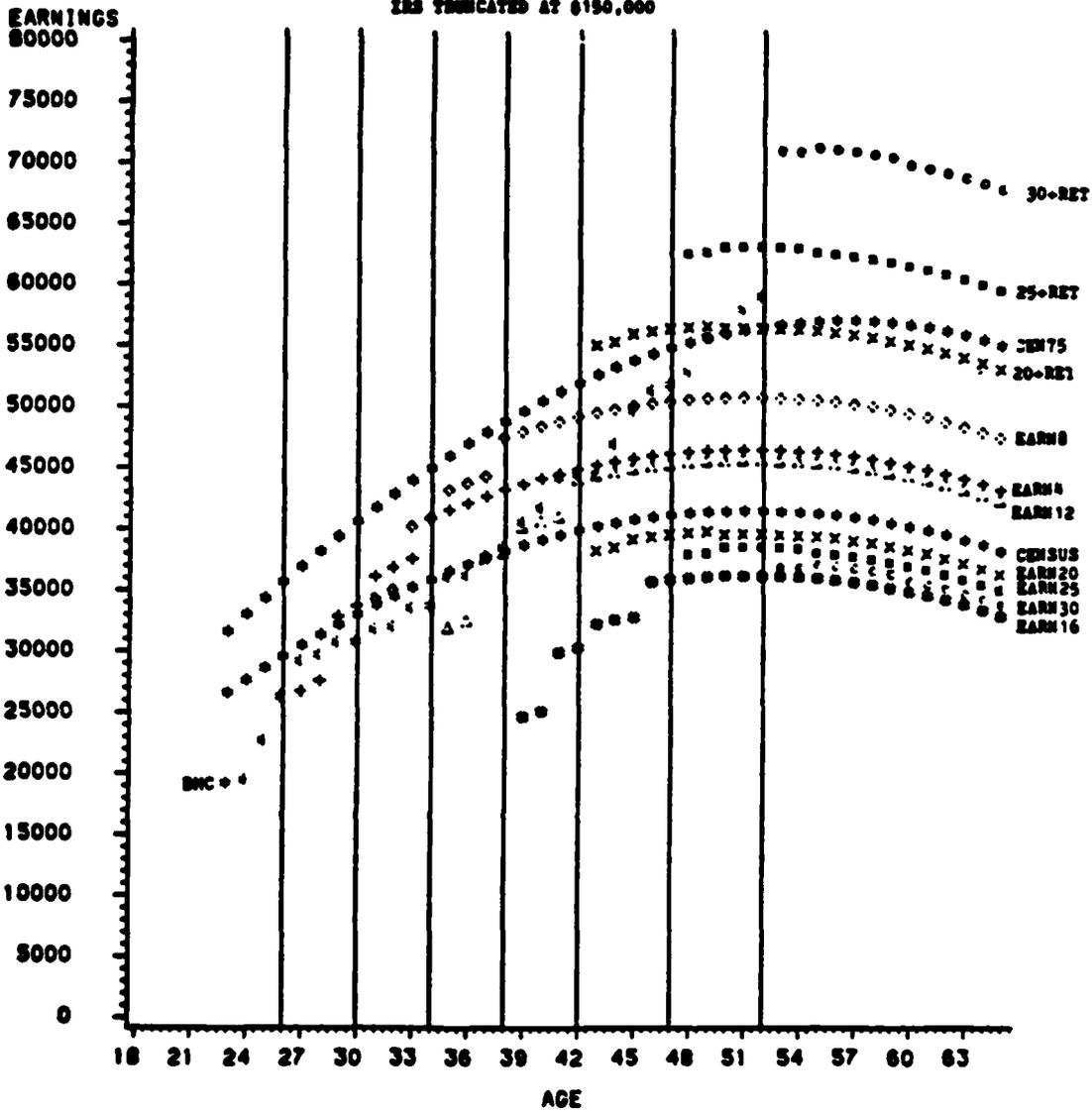
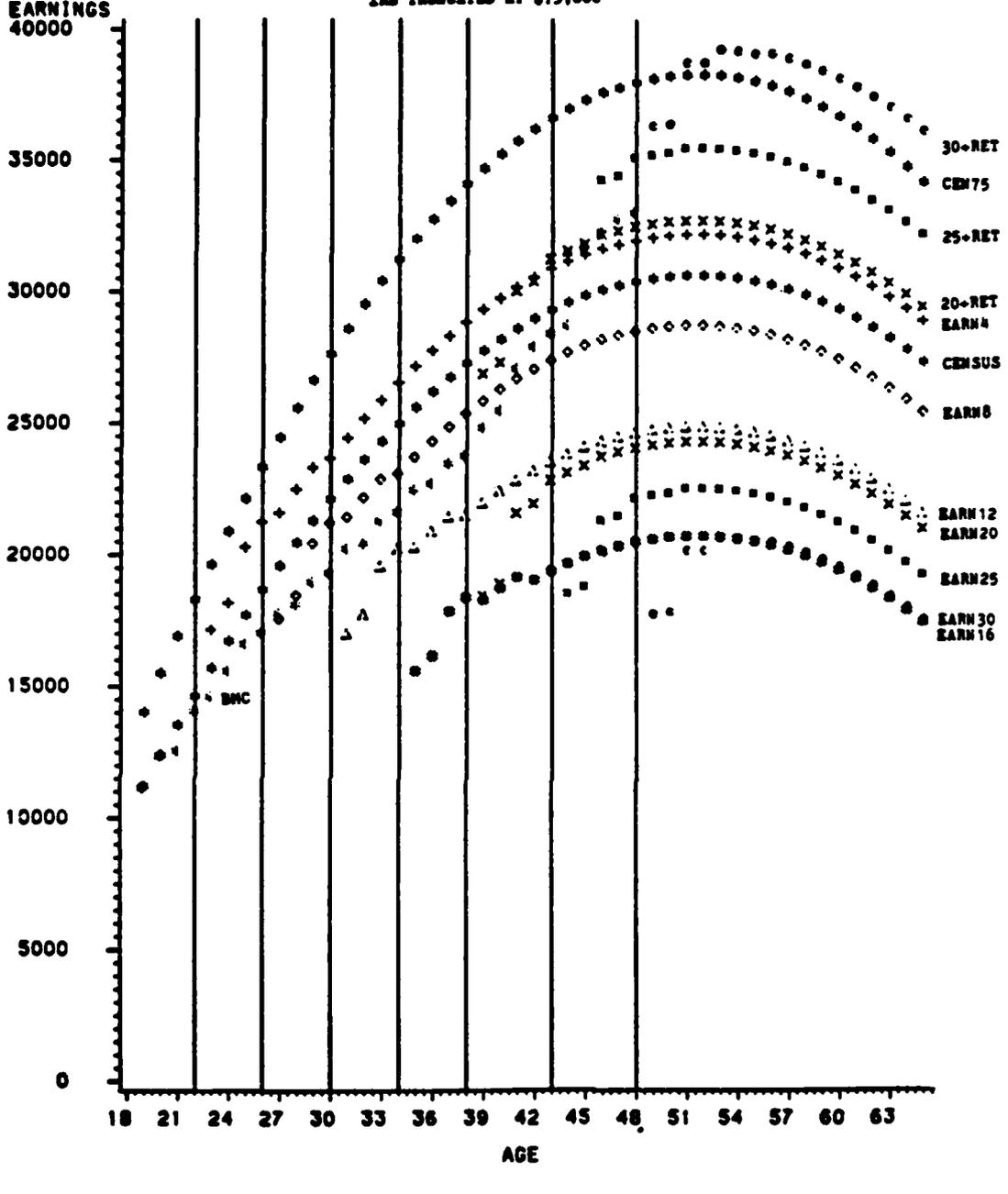


Figure 7
POST-SERVICE EARNINGS
 ENLISTED PERSONNEL
 IRS TRUNCATED AT \$75,000



APPENDIX Q

Figure 8
POST-SERVICE EARNINGS
 ENLISTED PERSONNEL
 IRS TRUNCATED AT \$150,000

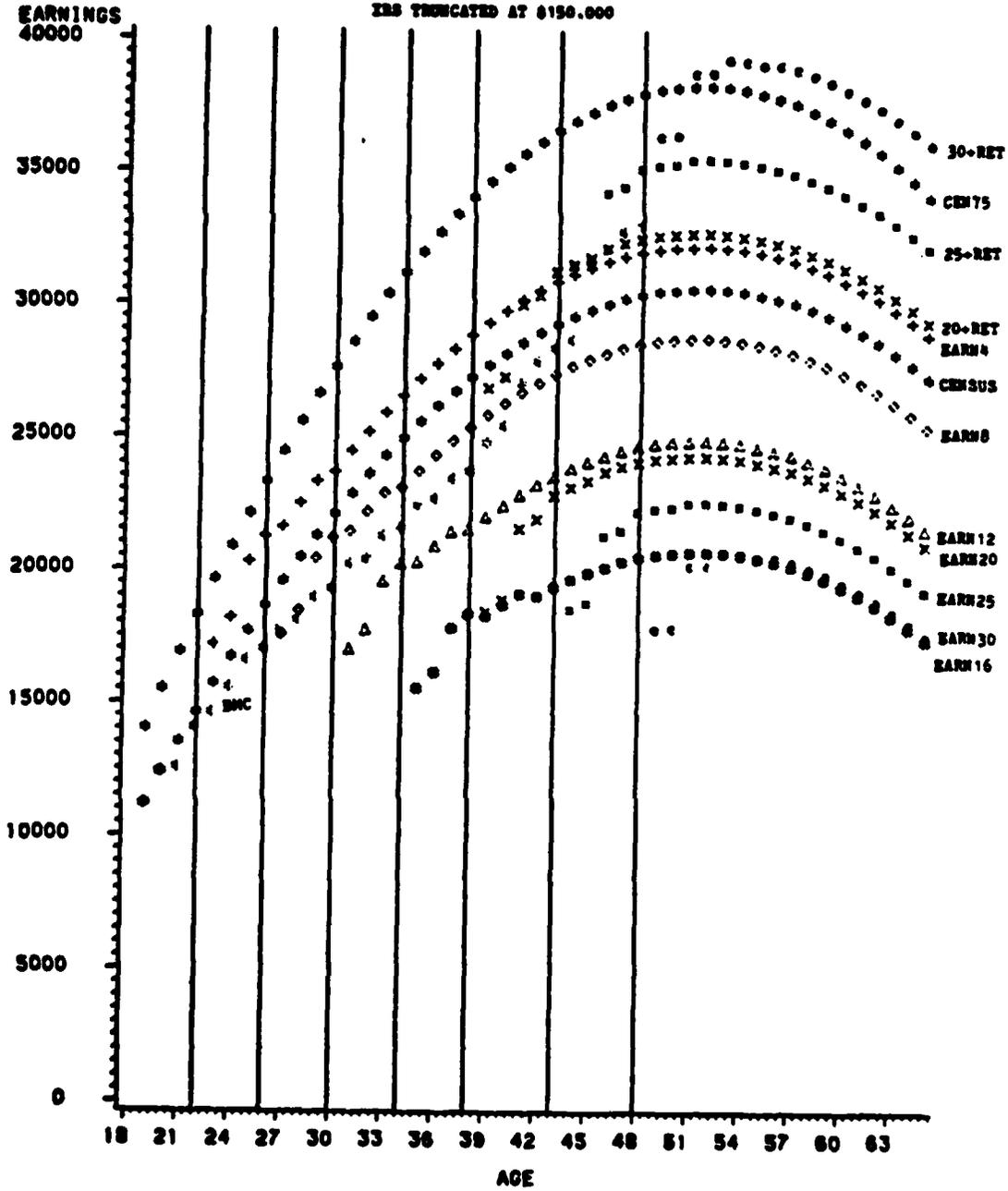


FIGURE 9
POST - SERVICE EARNINGS DIFFERENTIALS
BY AGE FOR VARIOUS LOS GROUPS
OFFICERS
IRS TRUNCATED AT \$75,000

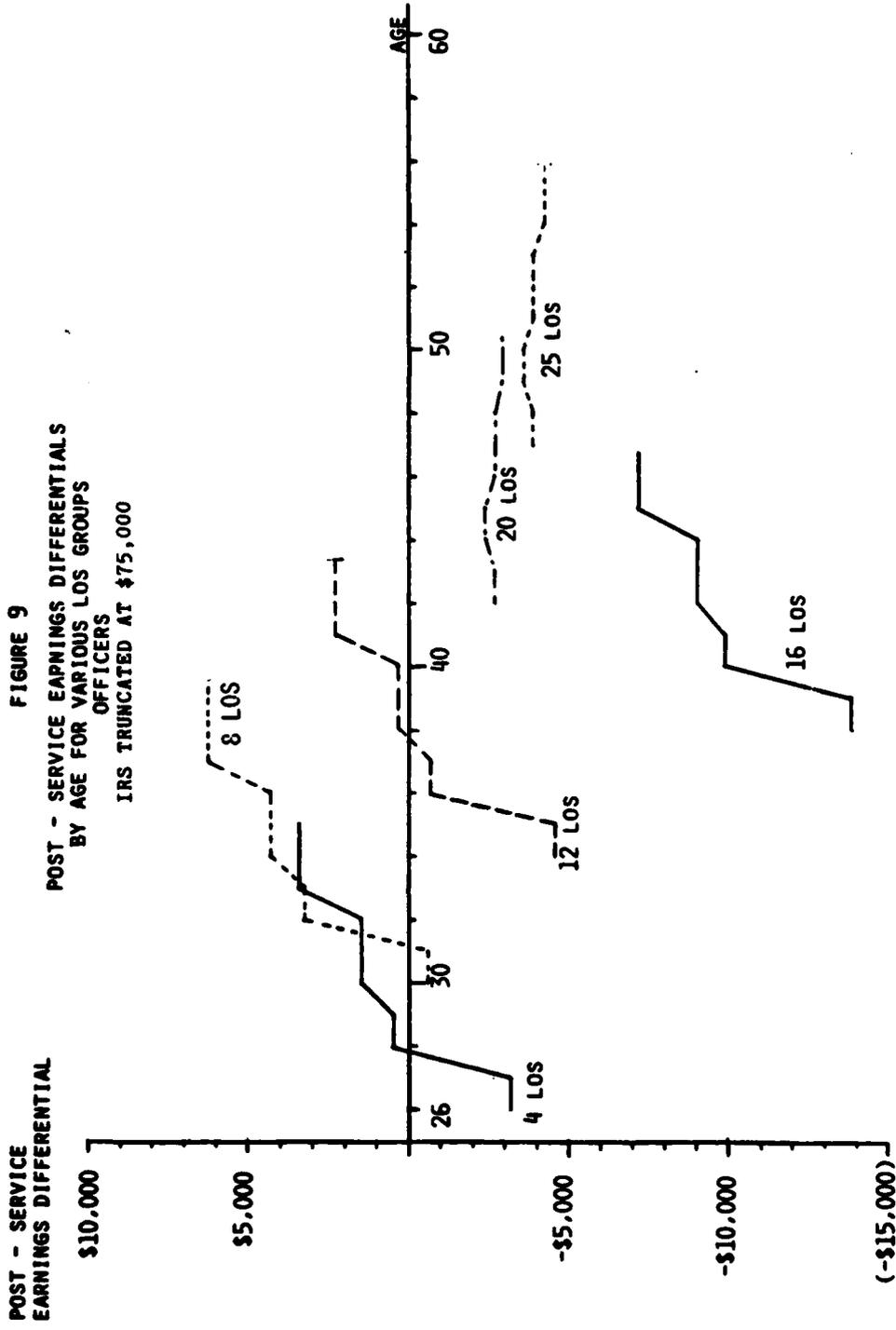


FIGURE 10
 POST - SERVICE EARNINGS DIFFERENTIALS
 BY AGE FOR VARIOUS LOS GROUPS
 OFFICERS
 IRS TRUNCATED AT \$150,000

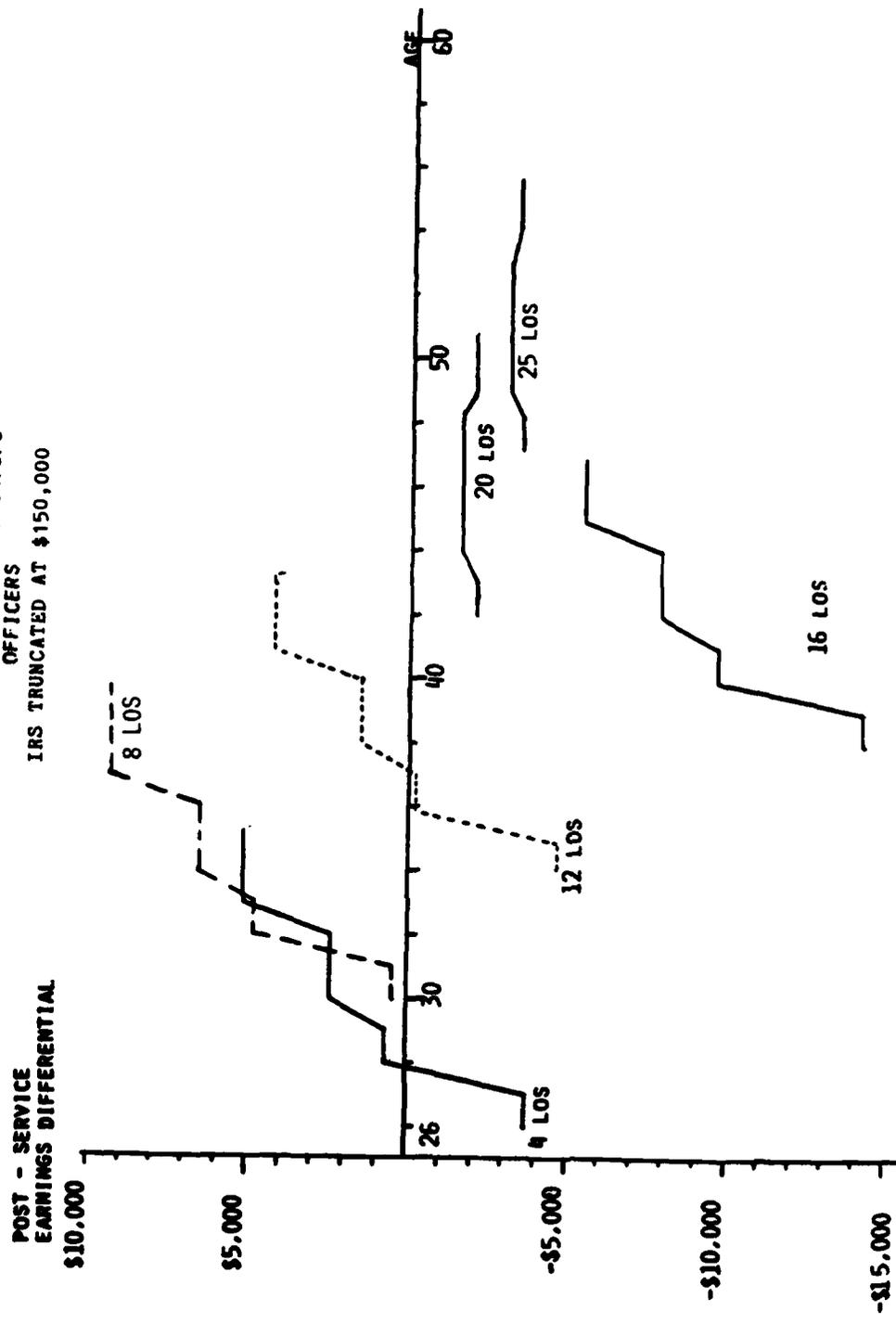


FIGURE 11
POST - SERVICE EARNINGS DIFFERENTIALS
BY AGE FOR VARIOUS LOS GROUPS
ENLISTED PERSONNEL
IRS TRUNCATED AT \$75,000

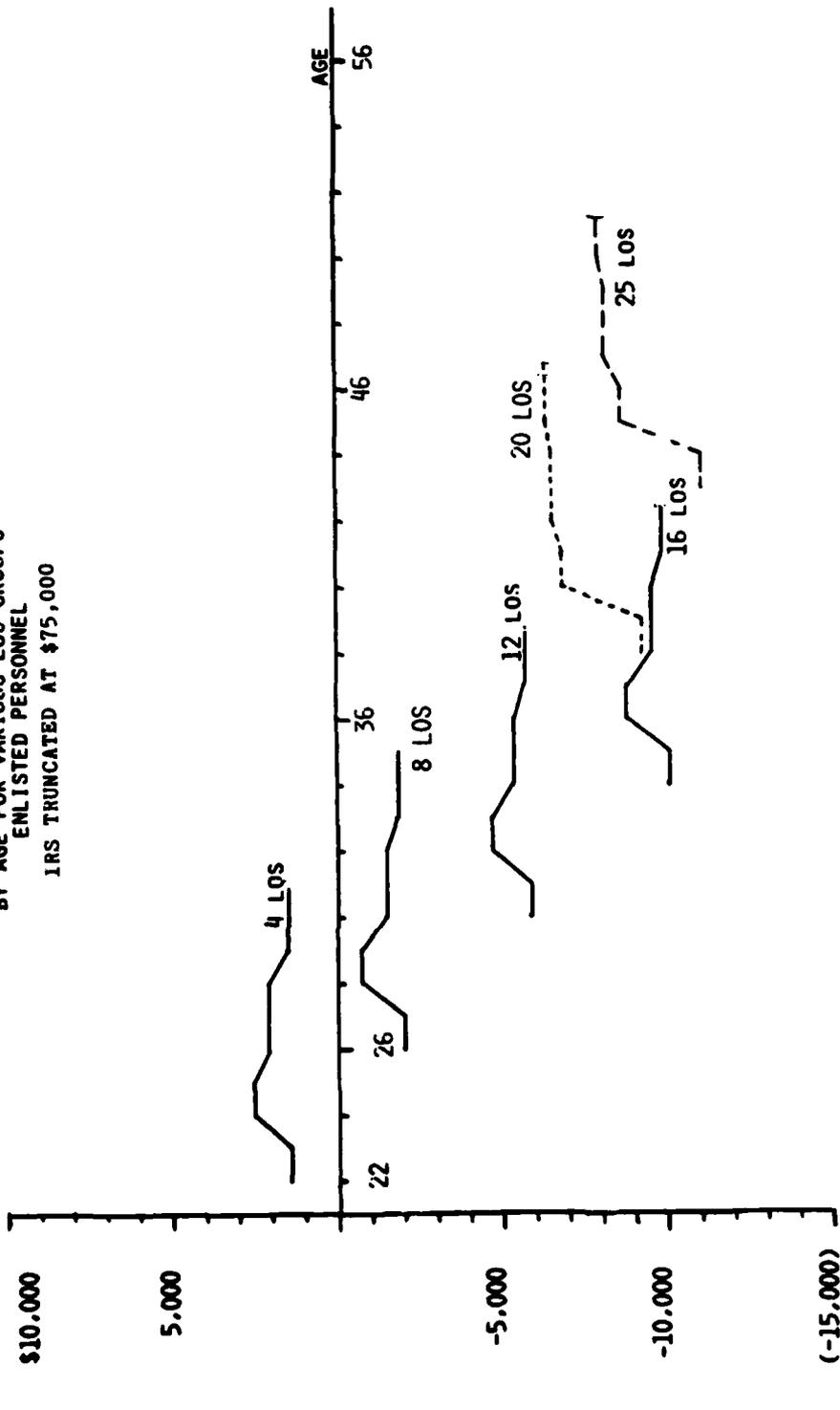


FIGURE 12
 POST - SERVICE EARNINGS DIFFERENTIALS
 BY AGE FOR VARIOUS LOS GROUPS
 ENLISTED PERSONNEL
 IRS TRUNCATED AT \$150,000

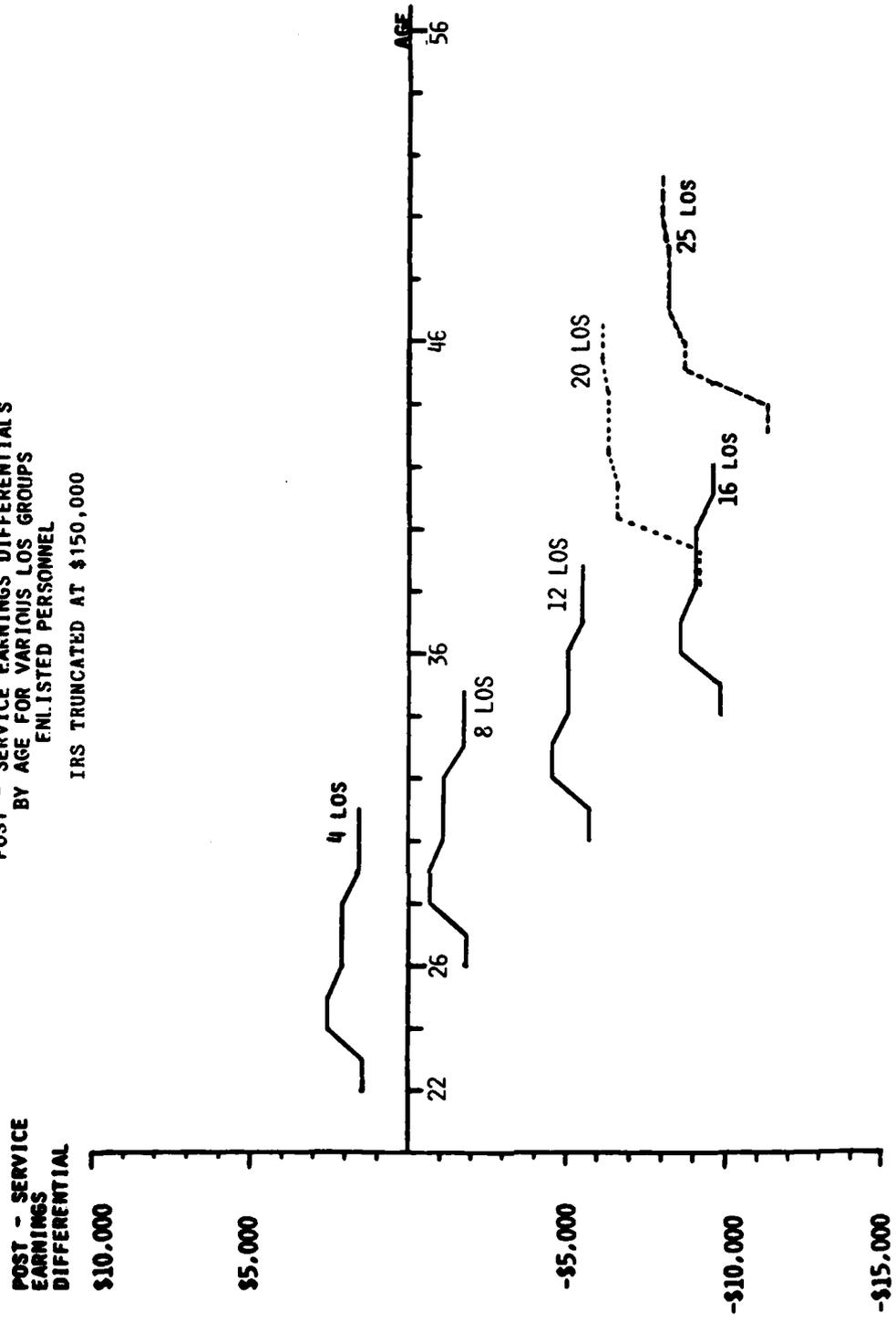


Table VII-9

Goldberg-Warner Specification for Officer Separates

Independent Variables	Occupational Category					
	Combat Arms	Aviation	Scientists & Engineers	Medical & Dental	Administration	Other
Constant	7.386 (26.04)	7.618 (53.88)	8.376 (33.13)	7.572 (37.20)	7.825 (37.37)	9.159 (38.03)
Race: White	-0.001 (0.02)	0.003 (0.05)	-0.014 (0.19)	0.200 (2.74)	0.101 (2.62)	0.118 (2.77)
Education	0.091 (5.11)	0.086 (9.67)	0.063 (4.10)	0.099 (9.18)	0.086 (6.43)	0.012 (0.81)
Length of Service (LOS)	0.135 (10.45)	0.149 (9.50)	0.098 (5.49)	0.083 (3.83)	0.076 (6.27)	0.072 (5.11)
Time Since Separation (TSS)	0.216 (10.17)	0.204 (9.06)	0.160 (6.07)	0.242 (8.91)	0.152 (7.38)	0.109 (5.03)
LOS ²	-0.004 (5.97)	-0.006 (7.28)	-0.002 (1.97)	-0.001 (0.84)	-0.002 (2.49)	-0.003 (3.14)
TSS ²	-0.008 (4.44)	-0.010 (5.24)	-0.005 (2.22)	-0.015 (6.27)	-0.005 (2.63)	-0.002 (1.18)
LOS*TSS	-0.009 (7.02)	-0.007 (5.40)	-0.012 (7.74)	-0.003 (1.81)	-0.008 (7.38)	-0.007 (5.52)
R ²	.074	.073	.037	.089	.046	.024
N	6250	5525	4222	5381	6985	6368

Figures in parentheses are the absolute values of the t-statistics.

Table VII-10

Goldberg-Warner Specification for Officer Retirees

<u>Independent Variables</u>	<u>Occupational Category</u>					
	<u>Combat Arms</u>	<u>Aviation</u>	<u>Scientists & Engineers</u>	<u>Medical & Dental</u>	<u>Administration</u>	<u>Other</u>
Constant	10.008 (9.82)	10.375 (10.31)	9.232 (9.66)	3.110 (1.73)	7.411 (9.41)	8.342 (8.06)
Race: White	-0.061 (1.04)	-0.055 (0.48)	-0.096 (0.81)	0.049 (0.25)	-0.136 (3.20)	-0.170 (2.59)
Education	0.024 (2.89)	0.027 (2.95)	0.065 (7.83)	0.150 (11.69)	0.070 (12.49)	0.025 (3.08)
Length of Service (LOS)	-0.026 (0.32)	-0.079 (0.98)	0.010 (0.13)	0.393 (2.60)	0.116 (1.88)	0.108 (1.32)
Time Since Separation (TSS)	0.003 (0.09)	0.072 (1.69)	-0.005 (0.13)	0.162 (2.12)	0.062 (2.11)	0.049 (1.26)
LOS ²	0.0003 (0.15)	0.002 (0.95)	-0.0003 (0.19)	-0.009 (2.81)	-0.002 (1.83)	-0.002 (1.34)
TSS ²	-0.001 (0.33)	-0.002 (0.72)	-0.001 (0.55)	-0.009 (2.26)	-0.004 (2.21)	-0.002 (0.72)
LOS*TSS	0.0003 (0.24)	-0.003 (2.11)	-0.001 (0.84)	-0.003 (0.88)	-0.001 (1.10)	-0.002 (1.34)
R ²	.004	.009	.024	.106	.019	.008
N	5435	4952	4810	1688	9280	5352

Figures in parentheses are the absolute values of the t-statistics.

Table VII-11

Goldberg-Warner Specification for Enlisted Separates

Independent Variables	Occupational Category					
	Combat Arms	Electronics, Etc.	Electricians, Etc.	Medical & Dental	Administration Other	
Constant	7.557 (86.60)	7.165 (83.09)	7.204 (86.68)	7.259 (52.20)	7.258 (93.53)	6.882 (46.57)
Race: White	0.157 (10.59)	0.139 (9.56)	0.162 (11.71)	0.120 (5.60)	0.166 (12.78)	0.100 (3.90)
Education	0.074 (10.79)	0.100 (14.14)	0.110 (16.43)	0.090 (8.11)	0.098 (15.79)	0.119 (10.81)
Length of Service (LOS)	0.082 (9.61)	0.137 (17.77)	0.110 (14.99)	0.120 (8.26)	0.091 (13.02)	0.088 (4.40)
Time Since Separation (TSS)	0.171 (12.89)	0.177 (14.32)	0.150 (12.52)	0.139 (7.39)	0.168 (14.55)	0.196 (7.99)
LOS ²	-0.003 (6.59)	-0.005 (11.97)	-0.004 (9.96)	-0.005 (5.99)	-0.003 (9.68)	-0.003 (2.19)
TSS ²	-0.008 (6.67)	-0.006 (5.72)	-0.005 (4.50)	-0.003 (1.63)	-0.007 (6.80)	-0.008 (3.58)
LOS*TSS	-0.004 (5.22)	-0.007 (10.82)	-0.007 (10.74)	-0.005 (4.46)	-0.005 (7.80)	-0.005 (2.11)
R ²	.068	.095	.069	.084	.073	.106
N	12804	14956	16375	6954	17030	4889

Figures in parentheses are the absolute values of the t-statistics.

Table VII-12

Goldberg-Warner Specification for Enlisted Retirees

Independent Variables	Occupational Category					
	Combat Arms	Electronics, Etc.	Electricians, Etc.	Medical & Dental	Administration Other	
Constant	6.576 (10.00)	7.516 (13.31)	8.131 (16.43)	7.211 (8.73)	7.746 (16.75)	9.968 (3.23)
Race: White	0.029 (1.49)	-0.032 (1.98)	-0.058 (4.13)	-0.015 (0.60)	-0.066 (5.43)	-0.149 (2.10)
Education	0.012 (1.53)	0.012 (1.33)	0.010 (1.61)	0.052 (3.70)	0.040 (7.29)	-0.001 (0.05)
Length of Service (LOS)	0.195 (3.57)	0.137 (2.97)	0.095 (2.36)	0.107 (1.56)	0.089 (2.39)	0.076 (0.31)
Time Since Separation (TSS)	0.154 (5.40)	0.191 (7.40)	0.152 (6.80)	0.174 (4.80)	0.145 (7.25)	-0.414 (2.24)
LOS ²	-0.004 (3.46)	-0.003 (3.00)	-0.002 (2.39)	-0.002 (1.56)	-0.002 (2.67)	-0.003 (0.70)
TSS ²	-0.008 (5.47)	-0.011 (8.42)	-0.009 (8.58)	-0.008 (4.32)	-0.011 (10.68)	-0.016 (2.31)
LOS*TSS	-0.002 (1.70)	-0.003 (2.67)	-0.002 (1.97)	-0.002 (1.69)	-0.0003 (0.39)	-0.011 (1.34)
R ²	.017	.018	.015	.026	.022	.020
N	8063	11049	12682	5367	15172	653

Figures in parentheses are the absolute values of the t-statistics.

APPENDIX VIII: LONGITUDINAL DISTRIBUTION OF EARNINGS

The tables in this appendix present longitudinal distributions of earnings by length of service and education for those working full time. The length of service categories are 0-4 years, 5-8 years and 9-19 years for separatees, and 20-24 years, 25-29 years and 30 or more years for retirees. The education categories for all groups are less than 12 years, 12 to 15 years inclusive, and greater than 15 years. In these tables a "-" indicates a cell with no observations.

Tables VIII-5, VIII-6, VIII-11, and VIII-12 are similar to Tables 38-41 of Chapter VI. The tables presented here include all individuals in our four analysis groups, not just those working full time.

TABLE VIII-1

LONGITUDINAL DISTRIBUTION OF EARNINGS BY LENGTH OF SERVICE
 OFFICER MALE SEPARATEES WORKING FULL TIME
 PERCENT WITH EARNINGS AT OR ABOVE 1973 SSA MAXIMUM

Year of Separation	Year of Earnings								
	1973	1974	1975	1976	1977	1978	1979	1980	1981
1972									
0-4 years LOS	68	74	78	80	82	84	85	87	87
5-8 years LOS	64	68	75	78	81	83	83	86	85
9-19 years LOS	51	56	60	65	66	70	72	73	74
1973		68	72	75	80	84	86	87	88
		66	71	76	80	84	85	85	86
		49	50	54	56	62	63	65	67
1974			69	71	78	81	84	85	86
			67	72	75	80	81	85	84
			54	54	59	61	64	68	73
1975				64	69	74	79	82	83
				65	67	73	77	82	82
				45	53	56	59	62	69
1976					66	70	75	80	83
					67	74	79	83	87
					67	71	72	78	78
1977						65	71	76	78
						70	79	83	84
						68	75	77	80
1978							67	72	75
							74	81	84
							72	80	81
1979								68	72
								75	82
								79	81
1980									68
									71
									77

TABLE VIII-2

LONGITUDINAL DISTRIBUTION OF EARNINGS BY EDUCATION
OFFICER MALE SEPARATEES WORKING FULL TIME
PERCENT WITH EARNINGS AT OR ABOVE 1973 SSA MAXIMUM

Year of Separation	Year of Earnings								
	1973	1974	1975	1976	1977	1978	1979	1980	1981
1972									
EDLT12 years	0	0	0	0	0	0	0	0	100
ED12-15 years	35	41	44	48	52	55	58	61	61
EDGT15 years	68	73	78	81	82	85	85	87	87
1973		100	67	67	67	67	67	100	67
		36	39	44	47	56	56	58	61
		69	73	77	81	84	86	87	88
1974			0	100	100	100	100	0	0
			46	48	58	62	64	65	74
			67	69	74	78	80	83	84
1975				89	90	92	88	94	95
				37	41	48	49	56	62
				62	67	72	76	80	81
1976					100	100	100	100	100
					46	46	47	57	65
					68	73	78	82	84
1977						-	-	-	-
						44	55	56	57
						69	76	80	82
1978							0	0	-
							46	57	64
							72	79	81
1979								-	-
								57	60
								75	80
1980									65
									65
									73

TABLE VIII-3

LONGITUDINAL DISTRIBUTION OF EARNINGS BY LENGTH OF SERVICE
OFFICER MALE RETIREES WORKING FULL TIME
PERCENT WITH EARNINGS AT OR ABOVE 1973 SSA MAXIMUM

Year of Separation	Year of Earnings								
	1973	1974	1975	1976	1977	1978	1979	1980	1981
1972									
20-24 yrs. LOS	55	63	64	66	66	68	70	69	69
25-29 yrs. LOS	55	63	62	63	63	66	65	67	66
30 + yrs. LOS	53	59	60	59	63	62	63	65	66
1973		59	63	65	67	71	70	71	71
		60	62	62	67	64	66	66	69
		60	61	66	62	63	66	65	72
1974			59	60	64	66	68	70	70
			61	61	63	64	64	67	68
			68	63	62	64	64	63	67
1975				56	61	66	67	69	71
				57	59	62	62	64	65
				64	66	67	65	71	68
1976					57	63	67	69	71
					58	64	64	67	67
					54	63	60	65	65
1977						64	67	71	72
						60	65	68	71
						55	61	66	63
1978							67	72	73
							66	72	73
							62	68	67
1979								72	75
								72	74
								63	69
1980									74
									73
									70

APPENDIX Q

TABLE VIII-4

LONGITUDINAL DISTRIBUTION OF EARNINGS BY EDUCATION
OFFICER MALE RETIREES WORKING FULL TIME
PERCENT WITH EARNINGS AT OR ABOVE 1973 SSA MAXIMUM

Year of Separation	Year of Earnings								
	1973	1974	1975	1976	1977	1978	1979	1980	1981
1972									
EDLT12 years	43	67	75	62	50	90	82	64	55
ED12-15 years	46	54	54	57	58	59	61	61	62
EDGT15 years	60	67	68	69	69	71	72	72	72
1973		75 48 66	80 51 68	50 53 70	100 56 72	100 60 73	75 60 73	100 61 74	50 64 74
1974			50 47 66	50 49 66	60 54 68	43 55 70	57 56 72	50 60 73	40 61 73
1975				60 45 62	56 53 64	80 56 68	71 59 68	73 62 71	65 63 72
1976					50 43 61	57 52 67	56 58 69	67 61 70	71 62 73
1977						100 47 67	50 54 70	50 59 73	0 62 74
1978							100 51 70	50 59 75	100 63 75
1979								75 61 74	75 66 76
1980									64 65 76

APPENDIX Q

TABLE VIII-5
LONGITUDINAL DISTRIBUTION OF EARNINGS
ALL OFFICER MALE SEPARATEES
PERCENT WITH EARNINGS AT OR ABOVE 1973 SSA MAXIMUM

Year of Separation	Year of Earnings									
	1973	1974	1975	1976	1977	1978	1979	1980	1981	
1972	39	48	53	57	60	61	63	64	61	
1973		41	45	51	55	59	62	62	59	
1974			39	45	52	56	59	61	60	
1975				34	42	49	53	57	56	
1976					44	52	56	62	62	
1977						46	54	59	59	
1978							52	60	60	
1979								55	58	
1980									49	

TABLE VIII-6
LONGITUDINAL DISTRIBUTION OF EARNINGS
ALL OFFICER MALE RETIREES
PERCENT WITH EARNINGS AT OR ABOVE 1973 SSA MAXIMUM

Year of Separation	Year of Earnings									
	1973	1974	1975	1976	1977	1978	1979	1980	1981	
1972	24	30	29	30	31	31	31	30	27	
1973		28	29	31	33	34	33	33	30	
1974			26	29	32	33	33	33	30	
1975				24	29	32	33	34	32	
1976					28	33	36	37	36	
1977						32	38	39	38	
1978							37	41	41	
1979								41	43	
1980									40	

TABLE VIII-7

LONGITUDINAL DISTRIBUTION OF EARNINGS BY LENGTH OF SERVICE
 ENLISTED MALE SEPARATEES WORKING FULL TIME
 PERCENT WITH EARNINGS AT OR ABOVE 1973 SSA MAXIMUM

Year of Separation	Year of Earnings								
	1973	1974	1975	1976	1977	1978	1979	1980	1981
1972									
0-4 years LOS	28	36	36	40	44	47	50	51	50
5-8 years LOS	28	37	34	37	40	43	46	46	44
9-19 years LOS	24	33	31	33	34	38	40	41	41
1973		29	32	36	39	43	47	47	49
		28	30	36	37	40	43	43	43
		24	25	28	30	33	35	37	37
1974			21	25	30	36	40	41	42
			25	29	33	37	40	40	40
			22	27	29	32	33	34	36
1975				18	25	32	35	38	39
				22	28	34	39	42	41
				20	25	30	33	33	34
1976					20	26	33	34	36
					22	31	36	38	38
					24	30	34	34	33
1977						20	26	30	33
						27	34	37	37
						28	34	36	36
1978							22	27	28
							29	35	37
							33	37	37
1979								20	25
								27	32
								33	35
1980									16
									24
									30

APPENDIX Q

TABLE VIII-8

LONGITUDINAL DISTRIBUTION OF EARNINGS BY EDUCATION
ENLISTED MALE SEPARATEES WORKING FULL TIME
PERCENT WITH EARNINGS AT OR ABOVE 1973 SSA MAXIMUM

Year of Separation	Year of Earnings									
	1973	1974	1975	1976	1977	1978	1979	1980	1981	1981
1972										
EDL12 years	23	31	30	32	35	38	40	40	39	
ED12-15 years	29	38	36	39	43	46	49	50	49	
EDGT15 years	33	60	50	67	83	83	100	67	83	
1973		23	26	28	30	34	38	37	36	
		29	31	36	38	41	45	45	47	
		57	57	57	71	67	67	67	71	
1974			20	23	26	31	33	33	33	
			24	30	33	38	41	42	43	
			0	0	33	0	0	0	0	
1975				15	23	28	30	31	32	
				22	26	34	38	41	42	
				33	43	62	56	56	44	
1976					17	24	30	29	28	
					24	31	36	38	40	
					0	33	50	33	33	
1977						21	26	28	29	
						26	33	36	38	
						60	78	89	100	
1978							22	26	26	
							30	35	37	
							-	-	-	
1979								22	24	
								28	33	
								-	-	
1980									17	
									26	
									0	

TABLE VIII-9

LONGITUDINAL DISTRIBUTION OF EARNINGS BY LENGTH OF SERVICE
 ENLISTED MALE RETIREES WORKING FULL TIME
 PERCENT WITH EARNINGS AT OR ABOVE 1973 SSA MAXIMUM

Year of Separation	Year of Earnings								
	1973	1974	1975	1976	1977	1978	1979	1980	1981
1972									
20-24 yrs. LOS	22	31	31	35	37	39	42	43	43
25-29 yrs. LOS	13	20	21	24	26	25	29	28	31
30 + yrs. LOS	15	18	19	23	23	23	28	27	28
1973		24	28	32	35	38	40	41	42
		19	21	23	26	28	30	32	34
		18	18	20	22	26	27	31	31
1974			22	29	33	36	39	41	42
			17	22	25	29	32	34	35
			11	16	18	22	24	27	31
1975				20	26	33	38	40	42
				17	23	29	28	33	37
				16	26	28	29	30	34
1976					24	33	37	40	41
					17	24	27	31	35
					21	27	29	31	33
1977						26	33	38	42
						24	30	35	38
						22	33	33	39
1978							30	37	41
							24	32	34
							23	31	35
1979								31	39
								31	34
								34	34
1980									30
									30
									22

APPENDIX Q

TABLE VIII-10

LONGITUDINAL DISTRIBUTION OF EARNINGS BY EDUCATION
 ENLISTED MALE RETIREES WORKING FULL TIME
 PERCENT WITH EARNINGS AT OR ABOVE 1973 SSA MAXIMUM

Year of Separation	Year of Earnings								
	1973	1974	1975	1976	1977	1978	1979	1980	1981
1972									
EDLT12 years	17	25	25	28	30	32	35	36	36
ED12-15 years	21	29	30	33	36	37	41	40	42
EDGT15 years	-	-	-	-	-	-	-	-	-
1973		20	24	27	31	33	35	35	38
		24	27	31	34	37	38	41	41
		-	-	-	-	-	-	-	-
1974			19	25	28	33	36	36	39
			21	28	32	35	38	39	40
			-	-	-	-	-	-	-
1975				21	26	33	37	39	41
				19	26	32	36	39	41
				-	-	-	-	-	-
1976					22	33	34	37	38
					23	31	36	38	40
					-	-	-	-	-
1977						26	32	37	42
						25	33	38	42
						-	-	-	-
1978							29	37	39
							28	36	39
							-	-	-
1979								31	38
								31	38
								-	-
1980									29
									30
									50

TABLE VIII-11
LONGITUDINAL DISTRIBUTION OF EARNINGS
ALL ENLISTED MALE SEPARATEES
PERCENT WITH EARNINGS AT OR ABOVE 1973 SSA MAXIMUM

Year of Separation	Year of Earnings									
	1973	1974	1975	1976	1977	1978	1979	1980	1981	
1972	8	12	12	16	18	22	24	24	24	
1973		8	9	12	16	19	21	22	22	
1974			6	9	12	15	18	18	18	
1975				5	9	13	16	17	17	
1976					6	10	14	15	15	
1977						8	12	14	15	
1978							10	13	13	
1979								9	11	
1980									8	

TABLE VIII-12

LONGITUDINAL DISTRIBUTION OF EARNINGS
 ALL ENLISTED MALE RETIREES
 PERCENT WITH EARNINGS AT OR ABOVE 1973 SSA MAXIMUM

Year of Separation	Year of Earnings								
	1973	1974	1975	1976	1977	1978	1979	1980	1981
1972	6	9	9	11	12	13	14	13	12
1973		7	8	10	11	13	13	13	13
1974			6	8	10	12	13	14	13
1975				5	9	12	13	14	14
1976					7	12	14	15	15
1977						9	13	14	16
1978							11	14	15
1979								12	15
1980									11

TABLE VIII-13

LONGITUDINAL DISTRIBUTION OF EARNINGS
 ENLISTED MALE SEPARATEES WORKING FULL TIME
 PERCENT WITH EARNINGS AT OR ABOVE \$15,000

Year of Separation	Year of Earnings									
	1973	1974	1975	1976	1977	1978	1979	1980	1981	
1972	61	69	66	68	71	72	74	74	76	
1973		61	62	65	68	69	72	72	74	
1974			52	56	60	64	67	67	70	
1975				47	54	60	63	66	67	
1976					46	55	60	62	63	
1977						51	58	60	61	
1978							53	58	60	
1979								52	56	
1980									48	

TABLE VIII-14

LONGITUDINAL DISTRIBUTION OF EARNINGS
 ENLISTED MALE RETIREES WORKING FULL TIME
 PERCENT WITH EARNINGS AT OR ABOVE \$15,000

Year of Separation	Year of Earnings								
	1973	1974	1975	1976	1977	1978	1979	1980	1981
1972	53	62	62	65	66	67	68	68	68
1973		56	59	62	65	66	68	69	70
1974			51	60	62	66	68	69	69
1975				47	57	62	66	68	70
1976					50	61	65	68	70
1977						53	62	68	70
1978							59	66	68
1979								58	66
1980									55

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