

A FORTRAN PROGRAM FOR COMPUTING PRIMARY INSURANCE AMOUNTS

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Estimates of the actuarial status of the Old-Age, Survivors, and Disability (OASDI) system are made by projecting numbers of beneficiaries by beneficiary category, and by projecting benefit amounts for those same categories. The overall methodology underlying the long-range (75-year) cost estimates is explained in Actuarial Study No. 83: Long-Range Cost Estimates for Old-Age, Survivors, and Disability Insurance System, 1980 by Steven F. McKay. Details of the population projections underlying the projected numbers of beneficiaries are contained in Actuarial Study No. 85: Social Security Area Population Projections, 1981 by Joseph F. Faber and John C. Wilkin. Details of the long-range projection of benefit amounts are contained in Actuarial Note No. 108: Long-Range Projection of Average Benefits Under OASDI by Steven F. McKay.

To project OASDI average benefits for long-range cost estimates and for other purposes, the Office of the Actuary prepares computer programs to perform most of the calculations. In the past, some of those programs have been published (see Actuarial Note No. 80: Some Mathematical Aspects of the Social Security Amendments in Public Law 92-603 by Albert Rettig and Orlo R. Nichols and Actuarial Note No. 85: Changes in Social Security Benefits Under Public Law 93-233 by Albert Rettig and Orlo R. Nichols). Those published programs have not been republished in updated form over the past few years primarily because of the complications introduced by the 1977 Amendments to the Social Security Act. Prior to those amendments, it was possible to find most PIA's in one table which related an average monthly wage (AMW) to the PIA's. The 1977 Amendments introduced a wage-indexed method of computing a PIA, as well as a transitional-guarantee method to smooth the transition to the wage-indexed method. Because of the amendments, various PIA calculation methods apply to various groups of people, depending on factors such as age, earnings levels, and type of benefit. Although no computer program had been published covering these PIA calculation methods, they were explained in detail in Actuarial Note No. 100: Computing a Social Security Benefit After the 1977 Amendments by Steven F. McKay, Actuarial Note No. 111: Computing a Social Security Benefit After the 1980 and 1981 Amendments by Steven F. McKay, and Actuarial Study No. 86: Effects of the Various Social Security Benefit Computation Procedures by Steven F. McKay and Bruce D. Schobel.

The computer program in this Note implements the language of Actuarial Note No. 111. It is designed to serve many purposes, and so at first glance may appear lengthy. However, of the 1614 lines, 708 are comments, leaving 906 lines of program code. Amounts calculated by those 906 lines include the number of

elapsed years and computation years, the AMW and/or average indexed monthly earnings (AIME), any of the applicable PIA's (the old-start PIA, the special-minimum PIA, the PIA table PIA, the transitional guarantee PIA, and the wage-indexed PIA), and the corresponding Maximum Family Benefit (MFB). The PIA can be computed for most cases of retirement, disability, or death, whether past or present. Future benefits can be projected by specifying certain assumptions as to future average wage and CPI increases and future earnings bases.

The program is set up as a FORTRAN subroutine requiring approximately 8,000 words of storage when the parameters are as specified on line 227. It is largely written in segments. For instance, the old-start calculation is on lines 405 through 812. For many purposes, the old-start calculation is unimportant, so in those cases, by deleting lines 405 through 812 and by making a few other changes, the program can be considerably shortened without loss. Other simplifications are possible, such as elimination of all code concerning MFB calculations.

Although, with the addition of a calling program, the subroutine may be used as written, its greatest use is probably as a source of information concerning PIA calculations. It is not the same program as that used in the actual benefit operations of the Social Security Administration; there may be differences between the results produced by this program and a similar calculation performed for an actual benefit calculation. However, for most purposes this program should be sufficient.

The first 216 lines of the subroutine are comments describing how to use it and definitions of the variables in the subroutine. As an additional aid to understanding the programming, a short program which calls the subroutine is presented on the next page. The program produces the PIA for a male retiring at age 65 years and no months (the PIA for a female would be the same); date of birth is December 15, 1917; earnings are above the maximum in each year from 1937 to 1981. The result is \$752.50, the maximum PIA for a retiree at age 65 in 1982 after the June 1982 benefit increase (assuming no period of disability).

Sample Program to Call PIA Calculation Subroutine

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1:   PARAMETER IY=110,IX=IY+14,IZ=IY-31,IW=IY-32,IV=IY-33,MAXYRS=65
2:   DIMENSION AW82(IZ), BINC83(IW), EARNST(MAXYRS),
3:   &FTEARN(5), IAGE(2), IAME(5), IAPP(5),
4:   &IBAS84(IV), IBENDM(4), IBENDP(3), IBIRTH(3), IDO(2),
5:   &IENT(2), IORDER(5,IX), ISPMIN(IX), PAIME(3),
6:   &PAMEOS(2), PERCM(4), PERCP(3), PIA(5), PIAEL(5),
7:   &PPIAEL(4,5), VEARN(5,IX)
8:   REAL MFB(5), MFBEL(5)
9:   DOUBLE PRECISION UEARN(IX)
10:  IAGE(1)=65
11:  IAGE(2)=0
12:  ISEX=1
13:  IBIRTH(1)=12
14:  IBIRTH(2)=15
15:  IBIRTH(3)=1917
16:  IBEGIN=1937
17:  IEND=1981
18:  IOASDI=0
19:  DO 10 I=1937,1981
20: 10 EARNST(I-1936)=50000.00
21:  CALL ANYPIA (IAGE,ISEX,IBIRTH,IBEGIN,IEND,IOASDI,IDO,EARNST,
22:  1AW82,BINC83,IBAS84,
23:  2HIPIA,PIA,
24:  3CAP,FTEARN,HIMFB,IAME,IAPP,IAPPN,IBENDM,ICAP,IELGYR,IENT,IERNYR,
25:  4IERN50,IORDER,ITABEL,IYCPI1,IYCPI2,MFB,MFBEL,N,NDROP,NELAP,
26:  5PERCM,PIAEL,PPIAEL,VEARN,
27:  6IAMEOS,METHOS,NOLD,PAMEOS,PIB,
28:  7IBENDP,PAIME,PERCP,UEARN,
29:  8ISPMIN,ISPMNT,IYRSPM,PIABAS,SPMIN)
30:  WRITE (6,20) HIPIA
31: 20 FORMAT (' THE PIA IS:',F8.2)
32:  END

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Output from this program:

THE PIA IS: 752.50

109:C *IB = wage base in year 1936 + I.
 110:C *IBAS84 = wage bases supplied by user, 1984 to 1936+IX.
 111:C IBEGIN = beginning year of earnings used (4 digits).
 112:C *IBENDM = bend points for MFB formula under 1977 Act (0 if not
 113:C applicable).
 114:C *IBENDP = bend points for PIA formula under Wage-Indexed method (0 if
 115:C not applicable).
 116:C *IBIRTH = month, day, and year of birth (year is 4 digits).
 117:C *IB77 = wage base ignoring 1979-81 ad hoc increases in year 1936+I.
 118:C ICAP = disability Maximum Family Benefit cap indicator (=0 for
 119:C no cap, =1 for 1.5*PIA cap, =2 for .85*AIME cap, =3
 120:C for 1.0*PIA floor).
 121:C IDIVOS = divisor for 1977 Old-Start.
 122:C *IDO = month and year of disability onset if IOASDI=2, or death,
 123:C if IOASDI=1; meaningless if IOASDI=0 (year is 4 digits).
 124:C IELGYR = year prior to year of eligibility minus 1950 (minimum of 0).
 125:C IEND = last year of earnings used (4 digits).
 126:C *IENT = month and year of entitlement (year is 4 digits).
 127:C IERNYR = year prior to year of retirement or disability, or exact
 128:C year of death, minus 1950 (last year of earnings con-
 129:C sidered).
 130:C IERN50 = initial year of earnings minus 1950 (minimum 1).
 131:C IOASDI = 0 for old-age, 1 for survivor, 2 for disability.
 132:C *IORDER = 1 for year I if earnings in year I are among highest N;
 133:C I=1 to 5 is method number, J is year-1936 for I=1,
 134:C otherwise year-1950.
 135:C ISEX = sex of wage earner (1=male, 2=female).
 136:C *ISPMIN = 0 if not year of coverage, 1 if year of coverage, in year
 137:C 1936+I.
 138:C ISPMNT = total number of years of coverage in Special Minimum,
 139:C including those less than 10 and more than 30.
 140:C ITABEL = index of applicable PIA Table (1 is 1952 Act, 2 is 1954
 141:C Act, 3 is 1958 Act, 4 is 1965 Act, 5 is 1967 Act, 6
 142:C is 1969 Act, 7 is 1971 Act, 8 is 1972 Act, 9 is 1973
 143:C Act, 10 is 1977 Act).
 144:C IV = last year of period minus last year of actual earnings
 145:C base.
 146:C IW = last year of period minus last year of actual benefit
 147:C increase.
 148:C IX = last year of period minus 1936.
 149:C IY = last year of period minus 1950.
 150:C IYCPI1 = number of years for which benefit increases are applied
 151:C to PIA-Table PIA and 1977 Old-Start PIA for eligibility
 152:C in 1978.
 153:C IYCPI2 = number of years for which benefit increases are applied
 154:C to Wage-Indexed PIA, Transitional-Guarantee PIA, and
 155:C 1977 Old-Start PIA for eligibility in 1979 or later.
 156:C IYRSPM = number of years of coverage in Special Minimum in excess of
 157:C 10, up to 30.
 158:C *IZ = last year of period minus last year of actual average
 159:C earnings.
 160:C I1 = temporary index used in various places.
 161:C I2 = temporary index used in various places.
 162:C MAXYRS = maximum number of years of earnings, or implied earnings,


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217:C
218:   SUBROUTINE ANYPIA ( IAGE, ISEX, IBIRTH, IBEGIN, IEND, IOASDI, IDO, EARNST,
219:   1AW82, BINC83, IBAS84,
220:   2HIPIA, PIA,
221:   3CAP, FTEARN, HIMFB, IAME, IAPP, IAPPN, IBENDM, ICAP, IELGYR, IENT, IERNYR,
222:   4IERN50, IORDER, ITABEL, IYCPI1, IYCPI2, MFB, MFBEL, N, NDRDP, NELAP,
223:   5PERCM, PIAEL, PPIAEL, VEARN,
224:   6IAMEOS, METHOS, NOLD, PAMEOS, PIB,
225:   7IBENDP, PAIME, PERCP, UEARN,
226:   8ISPMIN, ISPMNT, IYRSPM, PIABAS, SPMIN)
227:   PARAMETER IY=110, IX=IY+14, IZ=IY-31, IW=IY-32, IV=IY-33, MAXYRS=65
228:C
229:   DIMENSION AW82(IZ), BINC83(IW), CPIINC(IY), EARNST(MAXYRS),
230:   &FTEARN(5), IAGE(2), IAME(5), IAME58(51), IAPP(5), IB(IX),
231:   &IBAS84(IV), IBENDM(4), IBENDP(3), IBIRTH(3), IB77(IX), IDO(2),
232:   &IENT(2), IORDER(5,IX), ISPMIN(IX), NORDER(IX), PAIME(3),
233:   &PAMEOS(2), PERCM(4), PERCP(3), PIA(5), PIAEL(5),
234:   &PIA54(157), PIB50(486), PIB58(51), PPIAEL(4,5), VEARN(5,IX)
235:   REAL MFB(5), MFBEL(5), MFBT, MFB50(486), MFB52(486), MFB54(486)
236:   DOUBLE PRECISION FQ(IX), TEARN(5), UEARN(IX), WEARN(IX)
237:C
238:C   Data initialization
239:C
240:C   Actual benefit increases for 1975 to 1982 inclusive:
241:   DATA (CPIINC(I), I=25, 32) / 8.0, 6.4, 5.9, 6.5, 9.9, 14.3, 11.2, 7.4/
242:C   Average earnings used for indexing (1951 to 1981 inclusive):
243:   DATA (FQ(I), I=15, 45) / 2799.16D0, 2973.32D0, 3139.44D0, 3155.64D0,
244:   &3301.44D0, 3532.36D0, 3641.72D0, 3673.80D0, 3855.80D0, 4007.12D0,
245:   &4086.76D0, 4291.40D0, 4396.64D0, 4576.32D0, 4658.72D0, 4938.36D0,
246:   &5213.44D0, 5571.76D0, 5893.76D0, 6186.24D0, 6497.08D0, 7133.80D0,
247:   &7580.16D0, 8030.76D0, 8630.92D0, 9226.48D0, 9779.44D0, 10556.03D0,
248:   &11479.46D0, 12513.46D0, 13773.10D0 /
249:C   Initialize wage bases from 1937 to 1983, inclusive
250:   DATA (IB(I), I=1, 47) / 14*3000, 4*3600, 4*4200, 7*4800, 2*6600, 4*7800,
251:   &9000, 10800, 13200, 14100, 15300, 16500, 17700, 22900, 25900, 29700, 32400,
252:   &35700/
253:C   Make these variables global
254:   DATA ROUND1 / 0. / IAMWT / 0 / PIAT / 0. / MFBT / 0. /
255:C
256:C   Initialize variables
257:C
258:   ICAP=0
259:   STOT=0.
260:   ITABEL=0
261:   IBENDP(2)=0
262:   IBENDP(3)=0
263:   IBENDM(2)=0
264:   IBENDM(3)=0
265:   IBENDM(4)=0
266:   DO 10 I=1, IX
267:   WEARN(I)=0.
268:   DO 10 I1=1, 5
269:   10 VEARN(I1, I)=0.
270:   DO 20 I=1, 5

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271:      IAME(I)=0
272:      PIA(I)=0.
273:      MFB(I)=0.
274:      20 IAPP(I)=0.
275:C Zero out EARNST beyond usable earnings
276:      I1=IEND-IBEGIN+2
277:      DO 30 I=I1,MAXYRS
278:      30 EARNST(I)=0.
279:C Set IBEGIN to 1937, if prior to 1951 and not already 1937
280:      IF (IBEGIN.GT.1950) GO TO 100
281:      IF (IBEGIN.LE.1937) GO TO 60
282:C First re-index earnings
283:      I1=IBEGIN-1937
284:      DO 40 I=IEND,IBEGIN,-1
285:      40 EARNST(I+I1-IBEGIN+1)=EARNST(I-IBEGIN+1)
286:C Fill in zero earnings at beginning of earnings record
287:      DO 50 I=1,I1
288:      50 EARNST(I)=0.
289:      IBEGIN=1937
290:C Set IEND to 1950, if prior to 1950
291:      60 IF (IEND.GE.1950) GO TO 80
292:C Fill in zero earnings at end of earnings record first
293:      I1=IEND-1935
294:      DO 70 I=I1,14
295:      70 EARNST(I)=0.
296:      IEND=1950
297:C Add up earnings before 1951
298:      80 DO 90 I=1,14
299:      90 STOT=STOT+EARNST(I)
300:C Set month and year of entitlement
301:      100 IENT(2)=IAGE(1)+IBIRTH(3)
302:      IENT(1)=IAGE(2)+IBIRTH(1)
303:C If more than month 12, increase year by 1 and decrease month by 12
304:      IF (IENT(1).LE.12) GO TO 110
305:      IENT(1)=IENT(1)-12
306:      IENT(2)=IENT(2)+1
307:C For retirement, IELGYR is year before age 62
308:      110 IELGYR=IBIRTH(3)+62-1951
309:C For births ON January 1, IELGYR is in prior year
310:      IF (IBIRTH(1).EQ.1.AND.IBIRTH(2).EQ.1) IELGYR=IELGYR-1
311:C For survivors, IELGYR is year before death; for disability, IELGYR is
312:C year before onset of disability; but only up to age 62
313:      IF (IOASDI.GT.0) IELGYR=MINO(IDO(2)-1951,IELGYR)
314:C For retirement, last year of earnings used is year prior to
315:C entitlement
316:      IF (IOASDI.NE.1) IERNYR=IENT(2)-1951
317:C For survivors, use earnings up to and including year of death
318:      IF (IOASDI.EQ.1) IERNYR=IDO(2)-1950
319:C For disability, use earnings up to year before benefits start,
320:C or up to year of disability onset, whichever is earlier (this
321:C is usual freeze computation; non-freeze computation is not
322:C considered)
323:      IF (IOASDI.NE.2) GO TO 120
324:      IERNYR=MINO(IENT(2)-1951,IDO(2)-1950)

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325:C Calculate number of benefit increases applied to 1973 Act PIA Table,
326:C if applicable
327: 120 IYCPII=0
328:     IF (IENT(2).LE.1974) GO TO 130
329:     IYCPII=IENT(2)-1975
330:C If entitled in June or later, increase by 1
331:     IF (IENT(1).GE.6) IYCPII=IYCPII+1
332:C Put CPI benefit increases into CPIINC
333: 130 DO 140 I=33,IY
334: 140 CPIINC(I)=BINC83(I-32)
335:C Put average wages into FQ
336:     DO 150 I=46,IX
337: 150 FQ(I)=AW82(I-45)
338:C Fill out earnings base array
339:     DO 160 I=48,IX
340: 160 IB(I)=IBAS84(I-47)
341:C Limit earnings to earnings base
342:     DO 170 I=IBEGIN,IEND
343: 170 EARNST(I-IBEGIN+1)=AMIN1(FLOAT(IB(I-1936)),EARNST(I-IBEGIN+1))
344:C
345:C Calculate elapsed years and N
346:C
347:C Start with 5 dropout years
348:     NDROP=5
349:     IF (IOASDI.EQ.0) GO TO 210
350:C For death or disability, use I1 to be number of years after 1950 up
351:C to year of death or first month of disability waiting period, and I2
352:C to be number of years after year age 21 is attained up to same
353:C ending year
354:     I1=IELGYR
355:     I2=IELGYR-(IBIRTH(3)-1929)
356:C For birthday on January 1, age 21 is attained on December 31
357:C of prior year
358:     IF (IBIRTH(1).EQ.1.AND.IBIRTH(2).EQ.1) I2=IELGYR-(IBIRTH(3)-1930)
359:C If onset is in December, first month of waiting period is in next
360:C year
361:     IF (IOASDI.NE.2.OR.IDO(1).NE.12) GO TO 200
362:     I1=I1+1
363:     I2=I2+1
364:C Number of elapsed years is lesser of I1 and I2
365:     NELAP=MIN0(I1,I2)
366:C Number of elapsed years is minimum of 2
367: 200 NELAP=MAX0(NELAP,2)
368:C Number of elapsed years is maximum of 40
369:     NELAP=MIN0(NELAP,40)
370:C Calculate N for Disability Amendments of 1980, if eligible in 1979
371:C or later, under age 47, disability calculation, and entitled in
372:C 1981 or later, or July or later 1980
373:     IF (IELGYR.GE.28.AND.IOASDI.EQ.2.AND.(IENT(2).GE.1981.OR.
374:     &(IENT(2).EQ.1980.AND.IENT(1).GE.7))) NDROP=MIN0(NELAP/5,5)
375:C N is NELAP minus NDROP, but at least 2
376:     N=MAX0(NELAP-NDROP,2)
377:     GO TO 250
378:C For retirement, test to see if after 1975 (due to change in computa-

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379:C tion point from age 65 to age 62 for males)
380: 210 IF (ISEX.EQ.1) GO TO 220
381:C For female, use age 62 comp date
382:   NELAP=MAXO(IELGYR,10)
383:   GO TO 240
384: 220 IF (IELGYR.GE.22) GO TO 230
385:C For age 62 attainment before 1973, NELAP is years after 1950 and
386:C before year of age 65, but at least 10
387:   NELAP=MAXO(IELGYR+3,10)
388:   GO TO 240
389:C For age 62 attainment after 1972, NELAP is years after 1950 and
390:C before year of age 62, but at least 24
391: 230 NELAP=MAXO(IELGYR,24)
392:C Number of elapsed years is minimum of 6
393: 240 NELAP=MAXO(NELAP,6)
394:C NELAP is maximum of 40
395:   NELAP=MINO(NELAP,40)
396:C N is NELAP minus NDROP, for entitlement in 1961 or later
397:   N=NELAP-NDROP
398:   IF (IELGYR.GE.7) GO TO 250
399:C For simplicity, use N=2 up to 1957, N=3 in 1958, N=4 in 1959
400:   N=MAXO(IELGYR-2,2)
401:C Set first year of post-1950 earnings
402: 250 IERN50=MAXO(1,IBEGIN-1950)
403:C IELGYR is at least 0
404:   IELGYR=MAXO(0,IELGYR)
405:C
406:C           ***** Calculate Old-Start PIA *****
407:C
408:C Data initialization of Old-Start quantities
409:C
410:C 1950 PIB-PIA Conversion Table PIB'S:
411:   DATA (PIB50(I),I=1,140) / 10.00,10.04,10.08,10.15,10.20,10.24,
412:   &10.28,10.35,10.40,10.44,10.48,10.55,10.60,10.64,10.68,10.75,10.80,
413:   &10.84,10.88,10.95,11.00,11.04,11.08,11.15,11.20,11.24,11.28,11.35,
414:   &11.40,11.44,11.48,11.55,11.60,11.64,11.68,11.75,11.80,11.84,11.88,
415:   &11.95,12.00,12.04,12.08,12.15,12.20,12.24,12.28,12.35,12.40,12.44,
416:   &12.48,12.55,12.60,12.64,12.68,12.75,12.80,12.84,12.88,12.95,13.00,
417:   &13.04,13.08,13.15,13.20,13.24,13.28,13.35,13.40,13.44,13.48,13.55,
418:   &13.60,13.64,13.68,13.75,13.80,13.84,13.88,13.95,14.00,14.04,14.08,
419:   &14.15,14.20,14.24,14.28,14.35,14.40,14.44,14.48,14.55,14.60,14.64,
420:   &14.68,14.75,14.80,14.84,14.88,14.95,15.00,15.04,15.12,15.17,15.24,
421:   &15.28,15.36,15.41,15.48,15.52,15.60,15.64,15.68,15.76,15.80,15.88,
422:   &15.92,16.00,16.04,16.13,16.20,16.24,16.32,16.40,16.44,16.52,16.60,
423:   &16.66,16.72,16.80,16.84,16.93,17.00,17.08,17.16,17.23,17.32,17.36,
424:   &17.44,17.54 /
425:   DATA (PIB50(I),I=141,280) / 17.60,17.68,17.76,17.84,17.92,18.00,
426:   &18.08,18.17,18.24,18.32,18.40,18.50,18.56,18.68,18.76,18.83,18.92,
427:   &19.00,19.08,19.15,19.24,19.32,19.36,19.46,19.52,19.60,19.68,19.77,
428:   &19.84,19.92,20.00,20.06,20.12,20.20,20.24,20.33,20.40,20.44,20.52,
429:   &20.60,20.64,20.72,20.80,20.86,20.92,21.00,21.04,21.12,21.16,21.24,
430:   &21.28,21.35,21.40,21.48,21.52,21.59,21.64,21.68,21.76,21.82,21.88,
431:   &21.92,22.00,22.05,22.08,22.16,22.20,22.25,22.28,22.36,22.40,22.45,
432:   &22.48,22.56,22.60,22.65,22.68,22.76,22.80,22.85,22.88,22.96,23.00,

```

433: &23.04,23.08,23.12,23.16,23.21,23.24,23.28,23.32,23.39,23.44,23.48,
 434: &23.52,23.56,23.60,23.64,23.68,23.74,23.76,23.80,23.88,23.91,23.96,
 435: &24.00,24.04,24.10,24.16,24.20,24.24,24.30,24.36,24.40,24.44,24.50,
 436: &24.56,24.60,24.64,24.70,24.76,24.80,24.84,24.90,24.96,25.00,25.04,
 437: &25.11,25.16,25.20,25.28,25.33,25.40,25.44,25.48,25.55,25.60,25.64,
 438: &25.72,25.78 /
 439: DATA (PIB50(I),I=281,420) / 25.84,25.88,25.92,26.00,26.04,26.12,
 440: &26.16,26.23,26.28,26.36,26.40,26.47,26.52,26.60,26.64,26.70,26.76,
 441: &26.80,26.88,26.94,27.00,27.04,27.12,27.20,27.24,27.32,27.40,27.46,
 442: &27.52,27.60,27.64,27.73,27.80,27.84,27.92,28.00,28.08,28.16,28.24,
 443: &28.31,28.36,28.44,28.52,28.61,28.68,28.76,28.84,28.92,29.00,29.08,
 444: &29.16,29.25,29.32,29.40,29.48,29.58,29.68,29.76,29.84,29.92,30.00,
 445: &30.08,30.16,30.27,30.36,30.44,30.52,30.64,30.72,30.80,30.92,31.00,
 446: &31.08,31.16,31.28,31.36,31.44,31.52,31.64,31.73,31.80,31.92,32.00,
 447: &32.10,32.20,32.28,32.40,32.50,32.60,32.68,32.80,32.90,33.00,33.08,
 448: &33.20,33.30,33.40,33.48,33.60,33.70,33.80,33.88,34.00,34.10,34.20,
 449: &34.28,34.40,34.50,34.60,34.68,34.80,34.90,35.00,35.08,35.20,35.30,
 450: &35.40,35.48,35.60,35.70,35.80,35.88,36.00,36.10,36.20,36.28,36.40,
 451: &36.50,36.60,36.68,36.80,36.90,37.00,37.08,37.20,37.30,37.40,37.48,
 452: &37.60,37.70 /
 453: DATA (PIB50(I),I=421,486) / 37.80,37.88,38.00,38.11,38.20,38.32,
 454: &38.44,38.56,38.68,38.76,38.88,39.00,39.12,39.20,39.32,39.44,39.56,
 455: &39.68,39.76,39.89,40.00,40.12,40.20,40.33,40.44,40.56,40.68,40.78,
 456: &40.88,41.00,41.12,41.22,41.32,41.44,41.56,41.67,41.76,41.88,42.00,
 457: &42.11,42.20,42.32,42.44,42.56,42.68,42.76,42.88,43.00,43.12,43.20,
 458: &43.32,43.44,43.56,43.68,43.76,43.89,44.00,44.12,44.20,44.33,44.44,
 459: &44.56,44.68,44.78,44.88,45.60 /
 460:C 1950 PIB-PIA Conversion Table MFB'S:
 461: DATA (MFB50(I),I=1,175) / 51*40.00,40.16,40.32,40.48,40.64,40.80,
 462: &40.96,41.12,41.28,41.44,41.60,41.76,41.92,42.08,42.24,42.40,42.56,
 463: &42.72,42.88,43.04,43.20,43.36,43.52,43.68,43.84,44.00,44.16,44.32,
 464: &44.48,44.64,44.80,44.96,45.12,45.28,45.44,45.60,45.76,45.92,46.08,
 465: &46.24,46.40,46.56,46.72,46.88,47.04,47.20,47.36,47.52,47.68,47.84,
 466: &48.00,48.16,48.32,48.48,48.64,48.80,48.96,49.12,49.28,49.44,49.60,
 467: &49.76,49.92,50.08,50.24,50.40,50.56,50.72,50.88,51.04,51.20,51.36,
 468: &51.52,51.68,51.84,52.00,52.16,52.32,52.48,52.64,52.80,52.96,53.12,
 469: &53.28,53.44,53.60,53.76,53.92,54.08,54.24,54.40,54.56,54.72,54.88,
 470: &55.04,55.20,55.36,55.52,55.68,55.84,56.00,56.16,56.32,56.48,56.64,
 471: &56.80,56.96,57.12,57.28,57.44,57.60,57.76,57.92,58.08,58.24,58.40,
 472: &58.56,58.72,58.88,59.04,59.20,59.36,59.52,59.68,59.84 /
 473: DATA (MFB50(I),I=176,315) / 60.00,60.16,60.32,60.48,60.64,60.80,
 474: &60.96,61.12,61.28,61.44,61.60,61.76,61.92,62.08,62.24,62.40,62.56,
 475: &62.72,62.88,63.04,63.20,63.36,63.52,63.68,63.84,64.00,64.16,64.32,
 476: &64.48,64.64,64.80,64.96,65.12,65.28,65.44,65.60,65.76,65.92,66.08,
 477: &66.24,66.40,66.56,66.72,66.88,67.04,67.20,67.36,67.52,67.68,67.84,
 478: &68.00,68.16,68.32,68.48,68.64,68.80,68.96,69.12,69.28,69.44,69.60,
 479: &69.76,69.92,70.08,70.24,70.40,70.56,70.72,70.88,71.04,71.20,71.36,
 480: &71.52,71.68,71.84,72.00,72.16,72.32,72.48,72.64,72.80,72.96,73.12,
 481: &73.28,73.44,73.60,73.76,73.92,74.08,74.24,74.40,74.56,74.72,74.88,
 482: &75.04,75.20,75.36,75.52,75.68,75.84,76.00,76.16,76.32,76.48,76.64,
 483: &76.80,76.96,77.12,77.28,77.44,77.60,77.76,77.92,78.08,78.24,78.40,
 484: &78.56,78.72,78.88,79.04,79.20,79.36,79.52,79.68,79.84,80.00,80.54,
 485: &81.06,81.60,82.14,82.66,83.20,83.74,84.26,84.80,85.34,85.86,86.40,
 486: &86.94,87.46 /

487: DATA (MFB50(I),I=316,486) / 88.00,88.53,89.06,89.58,90.12,90.65,
 488: &91.18,91.70,92.23,92.76,93.30,93.82,94.35,94.88,95.42,95.94,96.48,
 489: &97.02,97.54,98.08,98.62,99.14,99.68,100.22,100.74,101.28,101.82,
 490: &102.36,102.90,103.43,103.97,104.51,105.05,105.58,106.12,106.66,
 491: &107.20,107.73,108.26,108.79,109.32,109.86,110.38,110.92,111.45,
 492: &111.98,112.51,113.04,113.58,114.11,114.65,115.18,115.72,116.26,
 493: &116.79,117.33,117.86,118.40,118.93,119.46,119.98,120.51,121.04,
 494: &121.57,122.10,122.62,123.15,123.68,124.22,124.75,125.29,125.82,
 495: &126.36,126.90,127.43,127.97,128.50,129.04,129.58,130.11,130.65,
 496: &131.18,131.72,132.26,132.79,133.33,133.86,134.40,134.93,135.46,
 497: &135.98,136.51,137.04,137.57,138.10,138.62,139.15,139.68,140.22,
 498: &140.75,141.29,141.82,142.36,142.90,143.43,143.97,144.50,145.04,
 499: &145.58,146.10,146.64,147.18,147.70,148.24,148.78,149.30,149.84,
 500: &54*150.00 /

501:C 1952 PIB-PIA Conversion Table MFB'S:

502: DATA MFB52 / 61*45.00,6*45.60,5*46.40,6*47.20,
 503: &5*48.00,6*48.80,5*49.60,6*50.40,5*51.20,6*52.00,5*52.80,6*53.60,
 504: &5*54.40,6*55.20,5*56.00,6*56.80,5*57.60,6*58.40,5*59.20,6*60.00,
 505: &5*60.80,6*61.60,5*62.40,6*63.20,5*64.00,6*64.80,4*65.60,6*66.40,
 506: &4*67.20,5*68.00,5*68.80,5*69.60,5*70.40,5*71.20,4*72.00,6*72.80,
 507: &4*73.60,5*74.40,5*75.20,5*76.00,5*76.80,5*77.60,4*78.40,6*79.20,
 508: &2*80.00,2*80.80,81.60,2*82.40,83.20,2*84.00,2*85.60,86.40,
 509: &2*87.20,88.00,2*88.80,2*90.40,91.20,2*92.00,92.80,2*93.60,
 510: &2*95.20,96.00,2*96.80,97.60,2*98.40,2*100.00,100.80,2*101.60,
 511: &102.40,2*103.20,2*104.80,105.60,2*106.40,107.20,2*108.00,
 512: &2*109.60,110.40,2*111.20,112.00,2*112.80,2*114.40,115.20,
 513: &2*116.00,116.80,2*117.60,2*119.20,120.00,2*120.80,121.60,
 514: &2*122.40,2*124.00,124.80,2*125.60,126.40,2*127.20,2*128.80,
 515: &129.60,2*130.40,131.20,2*132.00,2*133.60,134.40,2*135.20,
 516: &136.00,2*136.80,2*138.40,139.20,2*140.00,140.80,2*141.60,
 517: &2*143.20,144.00,2*144.80,145.60,2*146.40,2*148.00,148.80,
 518: &2*149.60,150.40,2*151.20,2*152.80,153.60,2*154.40,155.20,
 519: &2*156.00,2*157.60,158.40,2*159.20,160.00,2*160.80,2*162.40,
 520: &163.20,2*164.00,164.80,2*165.60,2*167.20,168.00,50*168.75 /

521:C 1954 PIB-PIA Conversion Table PIA'S:

522: DATA PIA54 / 2*64.70,64.90,2*65.10,65.30,2*65.50,2*65.90,
 523: &66.10,2*66.30,66.50,2*66.70,2*67.10,67.30,2*67.50,67.70,2*67.90,
 524: &2*68.30,68.50,2*68.70,68.90,2*69.10,2*69.50,69.70,2*69.90,
 525: &70.10,2*70.30,2*70.70,70.90,2*71.10,71.30,2*71.50,2*71.90,
 526: &72.10,2*72.30,72.50,2*72.70,2*73.10,73.30,2*73.50,73.70,2*73.90,
 527: &2*74.30,74.50,2*74.70,74.90,2*75.10,2*75.50,75.70,2*75.90,
 528: &76.10,2*76.30,2*76.70,76.90,2*77.10,77.30,2*77.50,2*77.90,
 529: &78.10,2*78.30,78.50,2*78.70,2*79.10,79.30,2*79.50,79.70,2*79.90,
 530: &2*80.30,80.50,2*80.70,80.90,2*81.10,2*81.50,81.70,2*81.90,
 531: &82.10,2*82.30,2*82.70,82.90,2*83.10,83.30,2*83.50,2*83.90,
 532: &84.10,2*84.30,84.50,2*84.70,2*85.10,85.30,2*85.50,85.70,2*85.90,
 533: &2*86.30,86.50,2*86.70,86.90,2*87.10,2*87.50,87.70,87.90,88.50 /

534:C 1954 PIB-PIA Conversion Table MFB'S:

535: DATA (MFB54(I),I=1,175) / 34*50.00,50.10,50.25,50.40,50.55,
 536: &50.70,50.85,51.00,51.15,51.30,51.45,51.60,51.75,51.90,52.05,52.20,
 537: &52.35,52.50,52.65,52.80,52.95,53.10,53.25,53.40,53.55,53.70,53.85,
 538: &54.00,54.15,54.30,54.45,54.60,54.75,54.90,55.05,55.20,55.35,55.50,
 539: &55.65,55.80,55.95,56.10,56.25,56.40,56.55,56.70,56.85,57.00,57.15,
 540: &57.30,57.45,57.60,57.75,57.90,58.05,58.20,58.35,58.50,58.65,58.80,

541: &58.95,59.10,59.25,59.40,59.55,59.70,59.85,60.00,60.15,60.30,60.45,
542: &60.60,60.75,60.90,61.05,61.20,61.35,61.50,61.65,61.80,61.95,62.10,
543: &62.25,62.40,62.55,62.70,62.85,63.00,63.15,63.30,63.45,63.60,63.75,
544: &63.90,64.05,64.20,64.35,64.50,64.65,64.80,64.95,65.10,65.25,65.40,
545: &65.55,65.70,65.85,66.00,66.15,66.30,66.45,66.60,66.75,66.90,67.05,
546: &67.20,67.35,67.50,67.65,67.80,67.95,68.10,68.25,68.40,68.55,68.70,
547: &68.85,69.00,69.15,69.30,69.45,69.60,69.75,69.90,70.05,70.20,70.35,
548: &70.50,70.65,70.80,70.95,71.10 /
549: DATA (MFB54(I),I=176,310) / 71.25,71.40,71.55,71.70,71.85,72.00,
550: &72.15,72.30,72.45,72.60,72.75,72.90,73.05,73.20,73.35,73.50,73.65,
551: &73.80,73.95,74.10,74.25,74.40,74.55,74.70,74.85,75.00,75.30,75.45,
552: &75.60,75.75,75.90,76.05,76.20,76.35,76.65,76.80,76.95,77.10,77.25,
553: &77.40,77.55,77.70,78.00,78.15,78.30,78.45,78.60,78.75,78.90,79.05,
554: &79.35,79.50,79.65,79.80,79.95,80.10,80.25,80.40,80.70,80.85,81.00,
555: &81.15,81.30,81.45,81.60,81.75,82.05,82.20,82.35,82.50,82.65,82.80,
556: &82.95,83.10,83.40,83.55,83.70,83.85,84.00,84.15,84.30,84.45,84.75,
557: &84.90,85.05,85.20,85.35,85.50,85.65,85.80,86.10,86.25,86.40,86.55,
558: &86.70,86.85,87.00,87.15,87.45,87.60,87.75,87.90,88.05,88.20,88.35,
559: &88.50,88.80,88.95,89.10,89.25,89.40,89.55,89.70,89.85,90.15,90.30,
560: &90.45,90.60,90.75,90.90,91.05,91.20,91.50,91.65,91.80,91.95,92.10,
561: &92.25,2*92.80,93.60,2*94.40,2*95.20 /
562: DATA (MFB54(I),I=311,486) / 2*96.00,96.80,2*97.60,2*98.40,2*99.20,
563: &2*100.00,100.80,2*101.60,2*102.40,2*103.20,104.00,2*104.80,
564: &105.60,2*106.40,107.20,2*108.00,2*109.60,110.40,2*111.20,112.00,
565: &2*112.80,2*114.40,115.20,2*116.00,116.80,2*117.60,2*119.20,
566: &120.00,2*120.80,121.60,2*122.40,2*124.00,124.80,2*125.60,126.40,
567: &2*127.20,2*128.80,129.60,2*130.40,131.20,2*132.00,2*133.60,
568: &134.40,2*135.20,136.00,2*136.80,2*138.40,139.20,2*140.00,140.80,
569: &2*141.60,2*143.20,144.00,2*144.80,145.60,2*146.40,2*148.00,
570: &148.80,2*149.60,150.40,2*151.20,2*152.80,153.60,2*154.40,155.20,
571: &2*156.00,2*157.60,158.40,2*159.20,160.00,2*160.80,2*162.40,
572: &163.20,2*164.00,164.80,2*165.60,2*167.20,168.00,2*168.80,169.60,
573: &2*170.40,2*172.00,172.80,2*173.60,174.40,2*175.20,2*176.80,
574: &177.60,2*178.40,179.20,2*180.00,2*181.60,182.40,2*183.20,184.00,
575: &2*184.80,2*186.40,187.20,2*188.00,188.80,2*189.60,2*191.20,
576: &192.00,2*192.80,193.60,2*194.40,2*196.00,196.80,197.60,200.00 /
577:C 1958 PIB-PIA Conversion Table AME'S:
578: DATA IAME58 / 76,78,80,81,83,85,87,89,90,92,94,96,97,99,101,102,
579: &104,106,107,109,113,118,122,127,132,136,141,146,150,155,160,164,
580: &169,174,178,183,188,193,197,202,207,211,216,221,225,230,235,239,
581: &244,249,250 /
582:C 1958 PIB-PIA Conversion Table PIB'S:
583: DATA PIB58 /16.20,16.84,17.60,18.40,19.24,20.00,20.64,21.28,21.88,
584: &22.28,22.68,23.08,23.44,23.76,24.20,24.60,25.00,25.48,25.92,26.40,
585: &26.94,27.46,28.00,28.68,29.25,29.68,30.36,30.92,31.36,32.00,32.60,
586: &33.20,33.88,34.50,35.00,35.80,36.40,37.08,37.60,38.20,39.12,39.68,
587: &40.33,41.12,41.76,42.44,43.20,43.76,44.44,44.88,45.60/
588: NOLD=0
589: METHOS=0
590:C If there are no earnings before 1951, go to the next section
591: IF (STOT.LT.1.) GO TO 600
592: IAPP(1)=1
593: IAPPN=1
594:C Calculate Old-Start N, first up to 1960

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595:      IF ( IENT(2).GE.1961) GO TO 320
596:      IF ( IOASDI.GT.0) GO TO 300
597:C For retirees, use number of years from 1937 to year prior to year of
598:C entitlement
599:      NOLD=IENT(2)-1937
600:      GO TO 310
601:C For survivors and disability, use years from 1937, or year age 22,
602:C if later, to year prior to year of death or disability onset
603: 300 NOLD=IDO(2)-MAX0(1937,IBIRTH(3)+22)
604:C If entitlement is in September 1954 or later, use 5 dropout
605: 310 IF ( IENT(2).GE.1955.OR.( IENT(2).EQ.1954.AND.IENT(1).GE.9))
606:      &NOLD=NOLD-5
607:C Minimum NOLD of 2
608:      NOLD=MAX0(2,NOLD)
609:      GO TO 340
610:C Calculate Old-Start N for 1961 or later death or disability
611: 320 IF ( IOASDI.EQ.0) GO TO 330
612:      NOLD=MIN0( IELGYR+9, IELGYR-( IBIRTH(3)-1924))
613:C Old-Start N is maximum of 35
614:      NOLD=MIN0(NOLD,35)
615:C Old-Start N is minimum of 2
616:      NOLD=MAX0(2,NOLD)
617:      GO TO 340
618:C Calculate Old-Start N for 1961 or later retirement
619:C Old-Start N is 14 greater than new-start N, but not greater than 35
620: 330 NOLD=N+14
621:      NOLD=MIN0(NOLD,35)
622:C Determine correct method to use
623:C If entitled prior to September 1950, use 1939 Amendments
624: 340 IF ( IENT(2).LT.1950.OR.( IENT(2).EQ.1950.AND.IENT(1).LE.8))
625:      &METHODS=1
626:C If entitled from September 1950 to December 1958, use 1950
627:C Conversion Table
628:      IF (( IENT(2).EQ.1950.AND.IENT(1).GE.9).OR.( IENT(2).GE.1951.AND.
629:      &IENT(2).LE.1958)) METHODS=2
630:C If entitled from January 1959 to December 1967, use 1958 Conversion
631:C Table
632:      IF ( IENT(2).GE.1959.AND.IENT(2).LE.1967) METHODS=3
633:      IF ( IENT(2).LE.1967) GO TO 360
634:C If born in 1916 or later and eligible in 1978 or later, go on
635:C to Old-Start methods 5 and 6
636:      IF ( IBIRTH(3).GE.1916.AND.IELGYR.GE.27) GO TO 350
637:      METHODS=4
638:      GO TO 360
639:C If eligible in 1978, use Old-Start method 5
640: 350 IF ( IELGYR.EQ.27) METHODS=5
641:C Otherwise use method 6
642:      IF ( IELGYR.GE.28) METHODS=6
643:C Calculate imputed earnings from 1937 to 1950
644: 360 GO TO (370,370,370,390,430,430), METHODS
645:C Methods 1, 2, and 3 use actual yearly earnings
646: 370 DO 380 I=1,14
647:      WEARN(I)=EARNST(I)
648: 380 VEARN(1,I)=WEARN(I)

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649:      GO TO 450
650:C  Method 4 allocates over 9 years, up to $3,000 per year
651: 390 IF (STOT.GT.27000.) GO TO 410
652:      DO 400 I=6,14
653:      WEARN(I)=STOT/9.
654: 400 VEARN(1,I)=WEARN(I)
655:      GO TO 450
656:C  If over $3,000 per year for 9 years, allocate $3,000 per year
657:C  up to 14 years
658: 410 I2=MIN0(INT((STOT+.01)/3000.),14)
659:      I2=15-I2
660:      DO 420 I=I2,14
661:      WEARN(I)=3000.
662: 420 VEARN(1,I)=WEARN(I)
663:C  If any earnings remain, put in next prior year
664:      IF (I2.LE.1) GO TO 450
665:      WEARN(I2-1)=STOT-INT(STOT/3000.)*3000.
666:      VEARN(1,I2-1)=WEARN(I2-1)
667:      GO TO 450
668:C  Methods 5 and 6 allocate over variable number of years
669: 430 IDIVOS=MAX0(1930-IBIRTH(3),1)
670:C  Test to see if over $3000 allocated per year
671:      IF (STOT/FLOAT(IDIVOS).GT.3000.) GO TO 410
672:C  If less than $3000 per year, fill out earnings array
673:      I2=15-IDIVOS
674:      DO 440 I=I2,14
675:      WEARN(I)=STOT/FLOAT(IDIVOS)
676: 440 VEARN(1,I)=WEARN(I)
677:C  Fill out remainder of WEARN
678:C  If 1977 Old-Start using Dec 1979 frozen PIA Table, do not use
679:C  earnings in year of age 62 or later
680: 450 I1=IERNYR+14
681:      IF (METHOS.EQ.6.AND.IERNYR.GT.IELGYR) I1=IELGYR+14
682:      DO 460 I=15,I1
683:      WEARN(I)=EARNST(I)
684: 460 VEARN(1,I)=WEARN(I)
685:C  Order the earnings and compute average monthly earnings
686:      CALL ORDER (WEARN,1,1,I1,NOLD,IAMEOS)
687:C  Calculate PIB before increase due to increment years
688:      PAMEOS(1)=AMINO(50,IAMEOS)
689:      PAMEOS(2)=AMINO(200,IAMEOS-50)
690:      PAMEOS(2)=AMAX1(0.,PAMEOS(2))
691:      PIB=.40*PAMEOS(1)+.10*PAMEOS(2)
692:C  Calculate number of increment years
693:      GO TO (470,470,470,490,500,500), METHOS
694:C  Under 1939 Amendments or 1950 Old-Start, one increment year for each
695:C  year of at least $200 of earnings
696: 470 IDIVOS=0
697:      DO 480 I=6,14
698:      IF (EARNST(I).GE.200.) IDIVOS=IDIVOS+1
699: 480 CONTINUE
700:      GO TO 510
701:C  Under 1967 Old-Start, 14 increment years
702: 490 IDIVOS=14

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703:      GO TO 510
704:C  Under 1977 Old-Start, one increment year for each $1650 of
705:C  cumulative earnings, with minimum 4 and Maximum 14
706: 500 IDIVOS=MAX0(INT(STOT)/1650,4)
707:      IDIVOS=MIN0(IDIVOS,14)
708:C  Increase PIB 1% for each increment year
709: 510 PIB=PIB*(1.+FLOAT(IDIVOS)/100.)
710:C  If this is 1939 Amendments, then PIB is PIA
711:      IF (METHOS.GT.1) GO TO 520
712:      PIA(1)=PIB
713:C  PIA is at least $10
714:      PIA(1)=AMAX1(PIA(1),10.)
715:C  MFB is 80% of Old-Start AMW, up to $85 or twice PIA
716:      MFB(1)=AMIN1(.8*FLOAT(IAMEOS),85.)
717:      MFB(1)=AMIN1(MFB(1),2.*PIA(1))
718:C  MFB is at least $20
719:      MFB(1)=AMAX1(20.,MFB(1))
720:C  This is end of 1939 Amendments calculation
721:      GO TO 600
722:C  Find corresponding new-start AME for 1950 Amendments or later
723: 520 I2=1
724:C  Method 2 uses 1950 Conversion Table; other methods use 1958 Table
725:      IF (METHOS.GT.2) GO TO 560
726: 530 IF (PIB.LE.PIB50(I2)) GO TO 540
727:      I2=I2+1
728:C  There are 486 lines in 1950 PIB-PIA Conversion Table; go back
729:C  and try again if not to end of table
730:      IF (I2.LT.486) GO TO 530
731:C  Find corresponding PIA and MFB
732:C  PIA's in Conversion Table start at $20 and increase at $.10 per
733:C  interval
734: 540 PIAEL(1)=19.90+FLOAT(I2)/10.
735:      PIA(1)=PIAEL(1)
736:      MFB(1)=MFB50(I2)
737:      MFBEL(1)=MFB(1)
738:C  If entitled in September 1952 or later, apply 1952 increase
739:      IF (IENT(2).LE.1951.OR.(IENT(2).EQ.1952.AND.IENT(1).LE.8))
740:      &GO TO 600
741:C  Increase is greater of $5 or 12.5%
742:      PIA(1)=AMAX1(PIA(1)+5.00,PIA(1)*1.125)
743:      CALL ROUND (PIA(1),2)
744:      MFB(1)=MFB52(I2)
745:C  If entitled in September 1954 or later, apply 1954 increase
746:      IF (IENT(2).LE.1953.OR.(IENT(2).EQ.1954.AND.IENT(1).LE.8))
747:      &GO TO 600
748:C  Increase is $5 up to I2=329; for greater amounts, use stored
749:C  Conversion Table
750:      IF (I2.GT.329) GO TO 550
751:      PIA(1)=PIA(1)+5.00
752:      MFB(1)=MFB54(I2)
753:      GO TO 600
754: 550 PIA(1)=PIA54(I2-329)
755:      MFB(1)=MFB54(I2)
756:C  This is end of 1950 Old-Start

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757:      GO TO 600
758: 560 IF (PIB.LE.PIB58(I2)) GO TO 570
759:      I2=I2+1
760:C There are 51 lines in 1958 PIB-PIA Conversion Table; go back and try
761:C again if not to end of table
762:      IF (I2.LT.51) GO TO 560
763: 570 IAME(1)=IAME58(I2)
764:C If not 1977 Old-Start with 1979+ eligibility, go to Old-Law
765:C PIA calculation
766:      IF (METHOS.NE.6) GO TO 580
767:C If eligible in 1982 or later, extend down below minimum
768:      IF (I2.EQ.1.AND.IELGYR.GT.30) IAME(1)=INT(PIB*76./16.20+.999)
769:C Find corresponding PIA in Dec 1978 PIA Table
770:      CALL CPIBAS (28,1)
771:C Find AIME MFB from Wage-Indexed formula
772:      CALL MFBCAL(1)
773:C Apply CPI increases to PIA and MFB
774:      CALL CPI77
775:C This is end of 1977 Old-Start with Dec 1978 frozen PIA Table
776:      GO TO 600
777:C Find corresponding PIA and MFB if entitled in June 1974 or later
778: 580 IF (IENT(2).LT.1974.OR.(IENT(2).EQ.1974.AND.IENT(1).LT.6))
779:      &GO TO 590
780:C Find which post-1973 PIA Table to use
781:      I1=24+IYCPI1
782:C Call post-1973 PIA Table subroutine
783:      CALL CPIBAS (I1,0)
784:      GO TO 600
785:C Call Old PIA calculation if necessary
786:C 1952 Act applies September 1952 to August 1954
787: 590 IF ((IENT(2).EQ.1952.AND.IENT(1).GE.9).OR.IENT(2).EQ.1953.OR.
788:      &(IENT(2).EQ.1954.AND.IENT(1).LT.9)) CALL PL1952 (IAME(1),PIA(1),
789:      &MFB(1))
790:C 1954 Act applies September 1954 to December 1958
791:      IF ((IENT(2).EQ.1954.AND.IENT(1).GE.9).OR.(IENT(2).GE.1955.AND.
792:      &IENT(2).LE.1958)) CALL PL1954 (IAME(1),PIA(1),MFB(1))
793:C 1958 Act applies January 1959 to December 1964
794:      IF (IENT(2).GE.1959.AND.IENT(2).LE.1964) CALL PL1958 (IAME(1),
795:      &PIA(1),MFB(1))
796:C 1965 Act applies January 1965 to January 1968
797:      IF ((IENT(2).GE.1965.AND.IENT(2).LE.1967).OR.(IENT(2).EQ.1968.
798:      &AND.IENT(1).EQ.1)) CALL PL1965 (IAME(1),PIA(1),MFB(1))
799:C 1967 Act applies February 1968 to December 1969
800:      IF ((IENT(2).EQ.1968.AND.IENT(1).GE.2).OR.IENT(2).EQ.1969)
801:      &CALL PL1967 (IAME(1),PIA(1),MFB(1))
802:C 1969 Act applies January 1970 to December 1970
803:      IF (IENT(2).EQ.1970) CALL PL1969 (IAME(1),PIA(1),MFB(1))
804:C 1971 Act applies January 1971 to August 1972
805:      IF (IENT(2).EQ.1971.OR.(IENT(2).EQ.1972.AND.IENT(1).LE.8))
806:      &CALL PL1971 (IAME(1),PIA(1),MFB(1))
807:C 1972 Act applies September 1972 to May 1974
808:      IF ((IENT(2).EQ.1972.AND.IENT(1).GE.9).OR.IENT(2).EQ.1973.OR.
809:      &(IENT(2).EQ.1974.AND.IENT(1).LE.5)) CALL PL1972 (IAME(1),PIA(1),
810:      &MFB(1))

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811:C Start Special Minimum method
812: 600 CONTINUE
813:C
814:C          ***** Calculate Special Minimum PIA *****
815:C
816:C Data initialization of Special-Minimum quantities:
817:C
818:C Initialize old-law wage bases from 1937 to 1983, inclusive:
819:   DATA (IB77(I),I=1,47) /14*3000,4*3600,4*4200,7*4800,2*6600,4*7800,
820:   &9000,10800,13200,14100,15300,16500,17700,18900,20400,22200,24300,
821:   &26700/
822:C
823:C If entitlement is before 1973, go on to next section
824:   IF (IENT(2).LT.1973) GO TO 750
825:   IAPP(5)=1
826:C Project old-law wage bases
827:   DO 610 I=48,IX
828:   BASE=FLOAT( IB77(I-1))*FQ(I-2)/FQ(I-3)
829: 610 IB77(I)=INT(BASE/300.+5)*300
830:   DO 620 I=1,IX
831: 620 ISPMIN(I)=0
832:   ISPMNT=0
833:C Find years of coverage before 1951
834:C Credit one year of coverage for each $900 of pre-1951 earnings
835:   I2=INT(STOT/900.)
836:C If no pre-1951 years of coverage, go to post-1950 section
837:   IF (I2.LE.0) GO TO 640
838:C Limit pre-1951 years of coverage to 14
839:   I2=MIN0(I2,14)
840:C Fill out array of years of coverage
841:   I2=15-I2
842:   DO 630 I=I2,14
843:   ISPMIN(I)=1
844: 630 ISPMNT=ISPMNT+ISPMIN(I)
845:C Find years of coverage after 1950
846: 640 I1=MAX0(1951,IBEGIN)
847:   I2=MIN0(IEND,IERNYR+1950)
848:   DO 650 I=I1,I2
849:   IF (EARNST(I-IBEGIN+1).GE..25*FLOAT( IB77(I-1936)))
850:   &ISPMIN(I-1936)=1
851: 650 ISPMNT=ISPMNT+ISPMIN(I-1936)
852:C Set SPMIN depending on year of retirement, starting with January 1979
853:   SPMIN=11.50
854:C From Jan 1973 to Feb 1974, was $8.50 per year of coverage
855:   IF (IENT(2).EQ.1973.OR.(IENT(2).EQ.1974.AND.IENT(1).LE.2))
856:   &SPMIN=8.50
857:C From March 1974 to Dec 1978, was $9.00 per year of coverage
858:   IF ((IENT(2).GE.1975.AND.IENT(2).LE.1978).OR.(IENT(2).EQ.1974.AND.
859:   &IENT(1).GE.3)) SPMIN=9.00
860:C Limit usable years of coverage to those in excess of 10, up to 20
861:C usable years
862:   IYRSPM=MIN0(ISPMNT-10,20)
863:   IYRSPM=MAX0(0,IYRSPM)
864:C PIA equals SPMIN times years of coverage between 10 and 30

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865:      PIA(5)=FLOAT(IYRSPM)*SPMIN
866:C   Save "base" PIA for output purposes
867:      PIABAS=PIA(5)
868:      PIAEL(5)=PIA(5)
869:C   Find MFB by first checking if 1979 or later
870:      IF (IENT(2).GE.1979) GO TO 710
871:C   Find old-law MFB from PIA Table for pre-1977 Special Minimum
872:C   Start with lowest applicable AME
873:      IAMESM=76
874:C   Test to see which PIA Table to use
875:   660 IF (IENT(2).GT.1974.OR.(IENT(2).EQ.1974.AND.IENT(1).GE.6))
876:      &GO TO 670
877:C   Use 1972 Act for entitlements up to May 1974
878:      CALL PL1972 (IAMESM,PIASM,MFB(5))
879:      GO TO 690
880:C   Use 1973 Act for entitlements starting in June 1974
881:   670 CALL PL1973 (IAMESM,PIASM,MFB(5))
882:C   Apply benefit increases if June 1975 or later
883:      IF (IYCPI1.LE.0) GO TO 690
884:      DO 680 I=1,IYCPI1
885:C   Calculate index of CPIINC
886:      I1=I+24
887:      PIASM=PIASM*(CPIINC(I1)/100.+1.)
888:      CALL ROUND (PIASM,I1)
889:      MFB(5)=MFB(5)*(CPIINC(I1)/100.+1.)
890:   680 CALL ROUND (MFB(5),I1)
891:C   Test to see if test PIA is greater than Special Minimum PIA
892:   690 IF (PIA(5)-PIASM-.01) 750,750,700
893:C   Increment AME and try again
894:   700 IAMESM=IAMESM+1
895:      IF (IAMESM.GT.1000) GO TO 750
896:      GO TO 660
897:C   Find January 1979 MFB
898:   710 MFB(5)=1.5*PIA(5)
899:C   Round the January 1979 MFB
900:      CALL ROUND (MFB(5),28)
901:      MFBEL(5) = MFB(5)
902:C   Apply benefit increases if June 1979 or later
903:      IF (IENT(2).EQ.1979.AND.IENT(1).LT.6) GO TO 750
904:C   Apply increases up to year prior to entitlement
905:      I1=IENT(2)-1951
906:C   Apply increase in year of entitlement if June or later
907:      IF (IENT(1).GE.6) I1=I1+1
908:      DO 720 I=29,I1
909:      PIA(5)=PIA(5)*(CPIINC(I)/100.+1.)
910:      CALL ROUND (PIA(5),I)
911:      MFB(5)=MFB(5)*(CPIINC(I)/100.+1.)
912:   720 CALL ROUND (MFB(5),I)
913:C   Start PIA Table method
914:   750 CONTINUE
915:C
916:C           ***** Calculate PIA Table PIA *****
917:C
918:C   If this is eligibility after 1978 or prior to 1953, go on to next

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919:C section
920: IF (IELGYR.GT.27.OR.IENT(2).LT.1953) GO TO 800
921:C If this is a survivor case with death prior to 1953, go on to
922:C next section
923: IF (IOASDI.EQ.1.AND.IDO(2).LT.1953) GO TO 800
924: IAPP(2)=1
925: IAPPN=2
926:C Set earnings to be used
927: DO 760 I=IERN50,IERNYR
928:C I1 is index of EARNST
929: I1=I-IERN50+1+MAX0(1951-IBEGIN,0)
930: WEARN(I)=EARNST(I1)
931: 760 VEARN(2,I)=WEARN(I)
932:C Order the earnings and compute average monthly earnings
933: CALL ORDER (WEARN,2,IERN50,IERNYR,N,IAME(2))
934:C See which PIA Table to use
935: IF (IENT(2).LT.1974.OR.(IENT(2).EQ.1974.AND.IENT(1).LE.5))
936: &GO TO 770
937:C Use 1973 Act
938: I1=24+IYCPI1
939: CALL CPIBAS (I1,0)
940: GO TO 800
941:C Call old PIA calculation if necessary
942:C 1952 Act applies September 1952 to August 1954
943: 770 IF ((IENT(2).EQ.1952.AND.IENT(1).GE.9).OR.IENT(2).EQ.1953.OR.
944: &(IENT(2).EQ.1954.AND.IENT(1).LT.9)) CALL PL1952 (IAME(2),PIA(2),
945: &MFB(2))
946:C 1954 Act applies September 1954 to December 1958
947: IF ((IENT(2).EQ.1954.AND.IENT(1).GE.9).OR.(IENT(2).GE.1955.AND.
948: &IENT(2).LE.1958)) CALL PL1954 (IAME(2),PIA(2),MFB(2))
949:C 1958 Act applies January 1959 to December 1964
950: IF (IENT(2).GE.1959.AND.IENT(2).LE.1964) CALL PL1958 (IAME(2),
951: &PIA(2),MFB(2))
952:C 1965 Act applies January 1965 to January 1968
953: IF ((IENT(2).GE.1965.AND.IENT(2).LE.1967).OR.(IENT(2).EQ.1968.
954: &AND.IENT(1).EQ.1)) CALL PL1965 (IAME(2),PIA(2),MFB(2))
955:C 1967 Act applies February 1968 to December 1969
956: IF ((IENT(2).EQ.1968.AND.IENT(1).GE.2).OR.IENT(2).EQ.1969)
957: &CALL PL1967 (IAME(2),PIA(2),MFB(2))
958:C 1969 Act applies January 1970 to December 1970
959: IF (IENT(2).EQ.1970) CALL PL1969 (IAME(2),PIA(2),MFB(2))
960:C 1971 Act applies January 1971 to August 1972
961: IF (IENT(2).EQ.1971.OR.(IENT(2).EQ.1972.AND.IENT(1).LE.8))
962: &CALL PL1971 (IAME(2),PIA(2),MFB(2))
963:C 1972 Act applies September 1972 to May 1974
964: IF ((IENT(2).EQ.1972.AND.IENT(1).GE.9).OR.IENT(2).EQ.1973.OR.
965: &(IENT(2).EQ.1974.AND.IENT(1).LE.5)) CALL PL1972 (IAME(2),PIA(2),
966: &MFB(2))
967:C Start Transitional Guarantee method
968: 800 CONTINUE
969:C
970:C ***** Calculate Transitional Guarantee PIA *****
971:C
972:C If this is not retirement or death within transition period,

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973:C go on to next section
974: IF (IELGYR.LT.28.OR.IELGYR.GT.32.OR.IOASDI.EQ.2) GO TO 850
975:C If a survivor case, death must be in month of attainment of age
976:C 62 or later
977: IF (IOASDI.EQ.1.AND.(IDO(2).LT.(IBIRTH(3)+62).OR.(IDO(2).EQ.
978: &(IBIRTH(3)+62).AND.IDO(1).LT.IBIRTH(1)))) GO TO 850
979: IAPP(4)=1
980: IAPPN=4
981:C Set earnings to be used, up to year prior to eligibility (IELGYR)
982: DO 810 I=IERN50,IELGYR
983: I1=I-IERN50+1+MAX0(1951-IBEGIN,0)
984: WEARN(I)=EARNST(I1)
985: 810 VEARN(4,I)=WEARN(I)
986:C Order the earnings and compute average monthly earnings
987: CALL ORDER (WEARN,4,IERN50,IELGYR,N,IAME(4))
988:C Calculate Dec 1978 PIA
989: CALL CPIBAS (28,1)
990:C Find AIME MFB from Wage-Indexed formula
991: CALL MFBCAL(4)
992:C Apply CPI increases to PIA and MFB
993: CALL CPI77
994:C Start Wage-Indexed method
995: 850 CONTINUE
996:C
997:C ***** Calculate Wage-Indexed PIA *****
998:C
999: IBENDP(2)=0
1000: IBENDP(3)=0
1001:C If this is not eligibility in 1979 or later, skip to final section
1002: IF (IELGYR.LE.27) GO TO 950
1003: IAPP(3)=1
1004: IAPPN=3
1005: ITABEL=10
1006:C Assign values to PIA formula percents
1007: PERCP(1)=.90
1008: PERCP(2)=.32
1009: PERCP(3)=.15
1010:C I1 is 2 years prior to eligibility
1011: I1=IELGYR-1
1012:C Calculate indexed earnings
1013: DO 860 I=IERN50,I1
1014:C I2 is index of earnings in EARNST array
1015: I2=I-IERN50+1+MAX0(1951-IBEGIN,0)
1016:C Multiply by average earnings in base year
1017: UEARN(I)=FQ(I1+14)*EARNST(I2)
1018:C Divide by average earnings in year 1950+I (1936+I+14)
1019: WEARN(I)=UEARN(I)/FQ(I+14)
1020:C Round to nearest cent
1021: WEARN(I)=AINT(WEARN(I)*100.+5)/100.
1022: 860 VEARN(3,I)=WEARN(I)
1023:C Earnings after base year are not indexed
1024: DO 870 I=IELGYR,IERNYR
1025: I2=I-IERN50+1+MAX0(1951-IBEGIN,0)
1026: WEARN(I)=EARNST(I2)

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1027: 870 WEARN(3,I)=WEARN(I)
1028:C Order indexed earnings and average highest N to determine AIME
1029:     CALL ORDER (WEARN,3,IERN50,IERNYR,N,IAME(3))
1030:C Project applicable bend points from 1979 bend points
1031:     IBENDP(2)=INT(180.*FQ(I1+14)/FQ(41)+.5)
1032:     IBENDP(3)=INT(1085.*FQ(I1+14)/FQ(41)+.5)
1033:C Find portion of AIME in each AIME interval
1034:     PAIME(1)=AMINO(IAME(3),IBENDP(2))
1035:     PAIME(2)=AMINO(IAME(3)-IBENDP(2),IBENDP(3)-IBENDP(2))
1036:     PAIME(2)=AMAX1(0.,PAIME(2))
1037:     PAIME(3)=AMAX0(IAME(3)-IBENDP(3),0)
1038:C Find AIME PIA
1039:     DO 900 I2=1,3
1040: 900 PIA(3)=PIA(3)+PERCP(I2)*PAIME(I2)
1041:C Round the AIME PIA
1042:     CALL ROUND (PIA(3),IELGYR)
1043:     PIAEL(3)=PIA(3)
1044:C Calculate the AIME MFB
1045:     CALL MFBCAL(3)
1046:C Apply CPI increases to PIA and MFB
1047:     CALL CPI77
1048:C Set to at least $122 and $183 IF eligible prior to 1982
1049:     IF (IELGYR.GE.31) GO TO 950
1050:     PIA(3)=AMAX1(PIA(3),122.)
1051:     MFB(3)=AMAX1(MFB(3),183.)
1052:C End of PIA calculation
1053: 950 CONTINUE
1054:C
1055:C Calculate highest PIA and MFB
1056:C
1057:     HIPIA=0.
1058:     HIMFB=0.
1059:     DO 960 I=1,5
1060:     IF (HIPIA.GT.PIA(I)) GO TO 960
1061:     HIPIA=PIA(I)
1062:     HIMFB=MFB(I)
1063:C Set applicable method number
1064:     IAPPN=I
1065: 960 CONTINUE
1066:     RETURN
1067:C
1068:C Subroutine to apply CPI increases to 1977 Amendments PIA and MFB
1069:C
1070:     SUBROUTINE CPI77
1071:     IYCPI2=0
1072:C If year of entitlement = year of eligibility, and entitlement is
1073:C prior to June, there are no CPI increases applied
1074:     IF (IENT(2)-1951.LE.IELGYR.AND.IENT(1).LE.5) RETURN
1075:C I1 is first year of benefit increase
1076:     I1=IELGYR+1
1077:C Do not apply any increases prior to 1979
1078:     IF (I1.LE.28) RETURN
1079:C I2 is last year of benefit increase
1080:     I2=IENT(2)-1951

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1081:C  If entitled in June or later, apply benefit increase in year of
1082:C  entitlement
1083:    IF (IENT(1).GE.6) I2=I2+1
1084:    DO 10 I=I1,I2
1085:    PIA(IAPPN)=PIA(IAPPN)*(CPIINC(I)/100.+1.)
1086:    CALL ROUND (PIA(IAPPN),I)
1087:    MFB(IAPPN)=MFB(IAPPN)*(CPIINC(I)/100.+1.)
1088:    CALL ROUND (MFB(IAPPN),I)
1089:C  Increment benefit increase counter
1090:    10 IYCPI2=IYCPI2+1
1091:    RETURN
1092:C
1093:C  Subroutine to apply CPI and wage base increases to 1973 Act PIA Table
1094:C
1095:C  J4      = year for which PIA Table is desired, minus 1950 (result
1096:C         includes benefit increases thru June of year 1950+J4).
1097:C  K1      = 1 for Transitional Guarantee or 1977 Old-Start calculation
1098:C         with 1979 or later eligibility, 0 otherwise
1099:C  K2      = amount of extension of PIA Table.
1100:C  K3      = year that AME is first included in PIA Table as of January,
1101:C         minus 1950, if AME is greater than $1100 (otherwise K3=0)
1102:C  K31     = K3-1.
1103:C  K4      = last AME in prior table.
1104:C  K5      = last AME in extended table.
1105:C
1106:    SUBROUTINE CPIBAS (J4,K1)
1107:    K3=0
1108:    IF (IAME(IAPPN).LE.1100) GO TO 40
1109:C  This section (prior to line 40) is for AME's greater than 1100
1110:    DO 10 I=25,J4
1111:    10 IF (IAME(IAPPN).LE.IB(I+14)/12.AND.K3.EQ.0) K3=I
1112:    K31=K3-1
1113:C  Find last PIA in June 1974 PIA Table
1114:    CALL PL1973 (1100,PIA(IAPPN),MFB(IAPPN))
1115:    IF (K3.EQ.25) GO TO 30
1116:C  Extend table and apply increases up to year prior to when AME is
1117:C  first included
1118:    DO 20 I=25,K31
1119:    L=I-1
1120:C  Extension amount depends on two successive wage bases
1121:    K4=IB(I+13)/12
1122:    K5=IB(I+14)/12
1123:C  Check to see if wage bases are exact multiples of $60 (22,900 in
1124:C  1979 and $25,900 in 1980 are not)
1125:    IF ((IB(I+13)/60)*60.NE.IB(I+13)) K4=(IB(I+13)/60+1)*5
1126:    IF ((IB(I+14)/60)*60.NE.IB(I+14)) K5=(IB(I+14)/60+1)*5
1127:    PIA(IAPPN)=PIA(IAPPN)+.2*FLOAT(K5-K4)
1128:    MFB(IAPPN)=1.75*PIA(IAPPN)
1129:    CALL ROUND (MFB(IAPPN),L)
1130:C  Apply benefit increase
1131:    PIA(IAPPN)=PIA(IAPPN)*(1.+CPIINC(I)/100.)
1132:    CALL ROUND (PIA(IAPPN),I)
1133:    MFB(IAPPN)=MFB(IAPPN)*(1.+CPIINC(I)/100.)
1134:    CALL ROUND (MFB(IAPPN),I)

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1135:C Check to see that MFB is at least 150% of PIA
1136:     MFBT=1.5*PIA(IAPPN)
1137:     CALL ROUND (MFBT,I)
1138:     IF (MFB(IAPPN).LT.MFBT) MFB(IAPPN)=MFBT
1139:C After applying June 1978 increase, set Transitional Guarantee
1140:C or 1977 Old-Start (1979 or later eligibility) PIA at eligibility
1141:     IF (I.EQ.28.AND.K1.GT.0) PIAEL(IAPPN)=PIA(IAPPN)
1142:     20 CONTINUE
1143:C Apply extension in year AME is first included in Table
1144:     30 PIA(IAPPN)=PIA(IAPPN)+FLOAT((IAME(IAPPN)-IB(K31+14)/12+4)/5)
1145:C I1 is year benefit increases are first applied minus 1950
1146:     I1=K3
1147:C Go to benefit increase section
1148:     GO TO 60
1149:C Use extended PIA Table if Transitional Guarantee or 1977 Old-Start
1150:C in 1981 or later
1151:     40 IF (IELGYR.GT.29.AND.(IAPPN.EQ.4.OR.IAPPN.EQ.1).AND.
1152:         &IAME(IAPPN).LE.75) GO TO 50
1153:         CALL PL1973 (IAME(IAPPN),PIA(IAPPN),MFB(IAPPN))
1154:         PIAEL(IAPPN)=PIA(IAPPN)
1155:         MFBEL(IAPPN)=MFB(IAPPN)
1156:C I1 is year benefit increases are first applied minus 1950
1157:     I1=25
1158:C If desired PIA is prior to June 1975, return to main program
1159:     IF (J4.LT.I1) RETURN
1160:C Go to benefit increase section
1161:     GO TO 60
1162:C Calculate downward-extended PIA Table values as of Dec 1978
1163:     50 PIA(IAPPN)=FLOAT(IAME(IAPPN))*121.8/76.
1164:     CALL ROUND (PIA(IAPPN),28)
1165:     PIAEL(IAPPN)=PIA(IAPPN)
1166:     MFB(IAPPN)=1.5*PIA(IAPPN)
1167:     CALL ROUND (MFB(IAPPN),28)
1168:     MFBEL(IAPPN)=MFB(IAPPN)
1169:C For simplicity, do not apply any benefit increases to frozen minimum
1170:     RETURN
1171:C Apply benefit increases to PIA Table
1172:     60 DO 70 I=I1,J4
1173:         PIA(IAPPN)=PIA(IAPPN)*(1.+CPIINC(I)/100.)
1174:         CALL ROUND (PIA(IAPPN),I)
1175:         MFB(IAPPN)=MFB(IAPPN)*(1.+CPIINC(I)/100.)
1176:         CALL ROUND (MFB(IAPPN),I)
1177:C Check to see that MFB is at least 150% of PIA
1178:     MFBT=1.5*PIA(IAPPN)
1179:     CALL ROUND (MFBT,I)
1180:     IF (MFB(IAPPN).LT.MFBT) MFB(IAPPN)=MFBT
1181:C After applying June 1978 increase, set Transitional Guarantee
1182:C or 1977 Old-Start (1979 or later eligibility) PIA at eligibility
1183:     IF (I.EQ.28.AND.K1.GT.0) PIAEL(IAPPN)=PIA(IAPPN)
1184:     70 CONTINUE
1185:     RETURN
1186:C
1187:C Subroutine to calculate an MFB at eligibility under the 1977 law
1188:C

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1189:C M      = method number.
1190:C
1191:      SUBROUTINE MFBCAL (M)
1192:C Assign values to MFB percents
1193:      PERCM(1)=1.50
1194:      PERCM(2)=2.72
1195:      PERCM(3)=1.34
1196:      PERCM(4)=1.75
1197:C Project the MFB bend points
1198:      IBENDM(2)=INT(230.*FQ( IELGYR+13)/FQ(41)+.5)
1199:      IBENDM(3)=INT(332.*FQ( IELGYR+13)/FQ(41)+.5)
1200:      IBENDM(4)=INT(433.*FQ( IELGYR+13)/FQ(41)+.5)
1201:C Find the portion of AIME in each MFB formula interval
1202:      PPIAEL(1,M)=AMIN1(PIAEL(M),FLOAT( IBENDM(2)))
1203:      PPIAEL(2,M)=AMIN1(PIAEL(M)-FLOAT( IBENDM(2)),FLOAT( IBENDM(3)-
1204:      1 IBENDM(2)))
1205:      PPIAEL(2,M)=AMAX1(0.,PPIAEL(2,M))
1206:      PPIAEL(3,M)=AMIN1(PIAEL(M)-FLOAT( IBENDM(3)),FLOAT( IBENDM(4)-
1207:      1 IBENDM(3)))
1208:      PPIAEL(3,M)=AMAX1(0.,PPIAEL(3,M))
1209:      PPIAEL(4,M)=AMAX1(PIAEL(M)-IBENDM(4),0.)
1210:      MFB(M)=0.
1211:C Add up the percents times the intervals
1212:      DO 10 I2=1,4
1213:      10 MFB(M)=MFB(M)+PERCM(I2)*PPIAEL(I2,M)
1214:C Calculate MFB for Disability Amendments of 1980
1215:      IF (IOASDI.NE.2) GO TO 40
1216:C If entitlement prior to June 1980, skip over 1980 Amendments
1217:      IF (IENT(2).EQ.1979.OR.(IENT(2).EQ.1980.AND.IENT(1).LE.6))
1218:      &GO TO 40
1219:C Determine appropriate cap
1220:      IF (.85*FLOAT(IAME(3)).LT.1.5*PIA(M)) GO TO 20
1221:C Cap is 150% of PIA
1222:      CAP=1.5
1223:      ICAP=1
1224:      MFB(M)=CAP*PIA(M)
1225:      GO TO 40
1226:      20 IF (.85*FLOAT(IAME(3)).GT.1.0*PIA(M)) GO TO 30
1227:C MFB is at floor of 100% of PIA
1228:      CAP=1.0
1229:      ICAP=3
1230:      MFB(M)=CAP*PIA(M)
1231:      GO TO 40
1232:C Cap is 85% of AIME
1233:      30 CAP=.85
1234:      ICAP=2
1235:      MFB(M)=CAP*FLOAT(IAME(3))
1236:C Round the result
1237:      40 CALL ROUND (MFB(M),IELGYR)
1238:      MFBEL(M)=MFB(M)
1239:      RETURN
1240:C
1241:C Subroutine to order earnings to compute an AIME or AME
1242:C

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1243:C IEARN = AIME or AME.
1244:C ITEMP = temporary storage for NORDER.
1245:C L1 = temporary index.
1246:C L2 = temporary index.
1247:C L3 = temporary index.
1248:C NTEARN = number of method being used.
1249:C N1 = first year of earnings in period to be considered.
1250:C N2 = last year of earnings in period to be considered.
1251:C N3 = N2-1.
1252:C N4 = number of high years to be selected.
1253:C TEMP = temporary storage for XEARN.
1254:C XEARN = earnings to be ordered.
1255:C
1256: SUBROUTINE ORDER (XEARN,NTEARN,N1,N2,N4,IEARN)
1257: DOUBLE PRECISION XEARN(124), TEMP
1258: N3=N2-1
1259:C Initialize arrays
1260: DO 10 L1=1,IX
1261: NORDER(L1)=L1
1262: 10 IORDER(NTEARN,L1)=0
1263:C L1 is index of first number in comparison
1264: DO 20 L1=N1,N3
1265: L3=L1+1
1266:C L2 is index of second number in comparison
1267: DO 20 L2=L3,N2
1268:C If earnings are already ordered, skip to end of loop
1269: IF (XEARN(L1).LE.XEARN(L2)) GO TO 20
1270:C Switch earnings
1271: TEMP=XEARN(L1)
1272: XEARN(L1)=XEARN(L2)
1273: XEARN(L2)=TEMP
1274:C Switch indices of earnings
1275: ITEMP=NORDER(L1)
1276: NORDER(L1)=NORDER(L2)
1277: NORDER(L2)=ITEMP
1278: 20 CONTINUE
1279:C L3 is index of least earnings used in summation
1280: L3=N2-N4+1
1281: TEARN(NTEARN)=0.
1282:C Add up highest earnings and set indicator for earnings being used
1283: DO 30 L1=L3,N2
1284: ITEMP=NORDER(L1)
1285: IORDER(NTEARN,ITEMP)=1
1286: 30 TEARN(NTEARN)=TEARN(NTEARN)+XEARN(L1)
1287:C Set floating-point value
1288: FTEARN(NTEARN)=TEARN(NTEARN)
1289:C Divide by number of computation months and round down to integer
1290: IEARN=TEARN(NTEARN)/(FLOAT(N4)*12.)
1291: RETURN
1292:C
1293:C Subroutine to calculate PIA's under 1973 Act, effective June 1974
1294:C
1295: SUBROUTINE PL1973 (IAVGMW,PIASUB,FMBSUB)
1296:C Test to see if AME is in extension of table above $1000

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1297:      IF (IAVGMW.GT.1000) GO TO 10
1298:C    If under $1000 AME, first get 1972 Act value
1299:      CALL PL1972 (IAVGMW,PIASUB,FMBSUB)
1300:      ITABEL=9
1301:C    Increase by 11%
1302:      PIASUB=1.11*PIASUB
1303:      CALL ROUND (PIASUB,24)
1304:      FMBSUB=1.11*FMBSUB
1305:      CALL ROUND (FMBSUB,24)
1306:C    MFB must be at least 1.5 times PIA
1307:      MFBT=1.5*PIASUB
1308:      CALL ROUND (MFBT,24)
1309:      IF (FMBSUB.LT.MFBT) FMBSUB=MFBT
1310:      RETURN
1311:C    If over $1000 AME, extend beyond $1000 in $5 intervals
1312:      10 ITABEL=9
1313:      PIASUB=FLOAT((IAVGMW+4)/5)+249.00
1314:C    MFB is 175% of PIA in extension
1315:      FMBSUB=1.75*PIASUB
1316:      CALL ROUND (FMBSUB,24)
1317:      RETURN
1318:C
1319:C    Subroutine to calculate PIA's under 1972 Act, effective Sept 1972
1320:C
1321:      SUBROUTINE PL1972 (IAVGMW,PIASUB,FMBSUB)
1322:C    Test to see if AME is in extension of table above $750
1323:      IF (IAVGMW.GT.750) GO TO 10
1324:C    If under $750 AME, first get 1971 Act value
1325:      CALL PL1971 (IAVGMW,PIASUB,FMBSUB)
1326:      ITABEL=8
1327:C    Increase by 20%
1328:      PIASUB=1.2*PIASUB
1329:      CALL ROUND (PIASUB,22)
1330:      FMBSUB=1.2*FMBSUB
1331:      CALL ROUND (FMBSUB,22)
1332:C    MFB must be at least 1.5 times PIA
1333:      MFBT=1.5*PIASUB
1334:      CALL ROUND (MFBT,22)
1335:      IF (FMBSUB.LT.MFBT) FMBSUB=MFBT
1336:      GO TO 20
1337:C    If over $750 AME, extend beyond $750 in $5 intervals
1338:      10 ITABEL=8
1339:      PIASUB=FLOAT((IAVGMW+4)/5)+204.50
1340:C    MFB is 175% of PIA in extension
1341:      FMBSUB=1.75*PIASUB
1342:      CALL ROUND (FMBSUB,22)
1343:C    Check to see if temporary 7% increase applies (Mar-May 1974)
1344:      20 IF (IENT(2).NE.1974.OR.IENT(1).LT.3.OR.IENT(1).GT.5) RETURN
1345:C    Apply 7% increase
1346:      PIASUB=1.07*PIASUB
1347:      CALL ROUND (PIASUB,24)
1348:      FMBSUB=1.07*FMBSUB
1349:      CALL ROUND (FMBSUB,24)
1350:      RETURN

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1351:C
1352:C Subroutine to calculate PIA's under 1971 Act
1353:C
1354: SUBROUTINE PL1971 (IAVGMW,PIASUB,FMBSUB)
1355:C Test to see if AME is in extension of table above $650 (treat
1356:C $651 as being in table before extension, since correct value
1357:C results)
1358: IF (IAVGMW.GT.651) GO TO 10
1359:C If under $651, first get 1969 Act value
1360: CALL PL1969 (IAVGMW,PIASUB,FMBSUB)
1361: ITABEL=7
1362:C Increase by 10%
1363: PIASUB=PIASUB*1.1
1364: CALL ROUND (PIASUB,21)
1365:C For AME's above $627, MFB formula is same as for extension
1366: IF (IAVGMW.GT.627) GO TO 30
1367:C For AME's up to $436, MFB is 88% of AME
1368: IF (IAVGMW.LE.436) FMBSUB=.88*IAMWT
1369:C For AME's from $437 to $627, MFB increases at 44% of AME
1370: IF (IAVGMW.GT.436) FMBSUB=383.68+.44*AMINI(IAMWT-436,191)
1371: CALL ROUND (FMBSUB,21)
1372: MFBT=1.5*PIASUB
1373: CALL ROUND (MFBT,21)
1374: IF (IAVGMW.LT.240.OR.FMBSUB.LT.MFBT) FMBSUB=MFBT
1375: RETURN
1376:C Extend beyond $651
1377: 10 ITABEL=7
1378:C Test to see if on 20% extension, which starts at $657
1379: IF (IAVGMW.GT.656) PIASUB=FLOAT((IAVGMW+4)/5)+145.4
1380:C From $652 to $656, use ad hoc values smoothing to 20% extension
1381: IF (IAVGMW.LE.656.AND.IAVGMW.GE.653) PIASUB=276.6
1382: IF (IAVGMW.EQ.652) PIASUB=275.8
1383:C MFB is 175% of PIA in extension
1384: 30 FMBSUB=1.75*PIASUB
1385: CALL ROUND (FMBSUB,21)
1386: RETURN
1387:C
1388:C Subroutine to calculate PIA's under 1969 Act
1389:C
1390: SUBROUTINE PL1969 (IAVGMW,PIASUB,FMBSUB)
1391:C There is no extension of table, so get 1967 Act value
1392: CALL PL1967 (IAVGMW,PIASUB,FMBSUB)
1393: ITABEL=6
1394:C Increase by 15%
1395: PIASUB=1.15*PIASUB
1396: CALL ROUND (PIASUB,20)
1397:C Minimum PIA of $64
1398: IF (PIASUB.LT.64.00) PIASUB=64.00
1399:C MFB does not change from 1967 Act for AME over $239
1400: IF (IAVGMW.GT.239) RETURN
1401:C Below $239, MFB is 1.5 times PIA
1402: FMBSUB=1.5*PIASUB
1403: CALL ROUND (FMBSUB,20)
1404: RETURN

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1405:C
1406:C Subroutine to calculate PIA's under 1967 Act
1407:C
1408: SUBROUTINE PL1967 (IAVGMW,PIASUB,FMBSUB)
1409:C Test to see if AME is in extension of table above $550 (treat
1410:C $551 to $553 as being in table before extension, since correct
1411:C value results)
1412: IF (IAVGMW.GT.553) GO TO 10
1413:C If under $554, first get 1965 Act value
1414: CALL PL1965 (IAVGMW,PIASUB,FMBSUB)
1415: ITABEL=5
1416:C Increase by 13%
1417: PIASUB=PIASUB*1.13
1418: CALL ROUND (PIASUB,18)
1419:C Minimum PIA of $55
1420: PIASUB=AMAX1(PIASUB,55.)
1421: GO TO 30
1422:C Extend beyond $553
1423: 10 ITABEL=5
1424:C Extension for this table is at 28.43%
1425: PIASUB=189.598+.2843*(IAVGMW-550)
1426:C Round PIA to nearest $1 in the extension
1427: ROUND1=0.
1428: IF (AMOD(PIASUB,1.).GE..49999) ROUND1=1.
1429: PIASUB=PIASUB+ROUND1-AMOD(PIASUB,1.)
1430:C Find the highest AMW giving that same PIA, for MFB calculation
1431: IAMWT=IAVGMW
1432: 20 IAMWT=IAMWT+1
1433: PIAT=189.598+.2843*FLOAT(IAMWT-550)
1434: ROUND1=0.
1435: IF (AMOD(PIAT,1.).GT..49999) ROUND1=1.
1436: PIAT=PIAT+ROUND1-AMOD(PIAT,1.)
1437: IF (PIAT-PIASUB.LT..1.AND.PIAT-PIASUB.GT.-.1) GO TO 20
1438: IAMWT=IAMWT-1
1439:C IAMWT is now highest AMW giving that same PIA
1440: GO TO 40
1441:C Find MFB for AMW's up to $553
1442: 30 IF (IAVGMW.GT.370) GO TO 40
1443:C For AMW's up to $179, MFB is same as in 1965 Act
1444: IF (IAVGMW.GE.179) RETURN
1445:C For AMW's from $180 to $370, MFB is 150% of PIA
1446: FMBSUB=1.5*PIASUB
1447: CALL ROUND (FMBSUB,18)
1448: RETURN
1449:C For AMW's above $436, MFB is $348.80 plus 40% of AMW above $436
1450: 40 IF (IAVGMW.LE.436) GO TO 50
1451: FMBSUB=348.80+.4*(IAMWT-436)
1452:C MFB is maximum of $434.40
1453: FMBSUB=AMIN1(FMBSUB,434.40)
1454: RETURN
1455:C MFB is 80% of AMW for AMW's from $371 to $436
1456: 50 FMBSUB=.8*IAMWT
1457: RETURN
1458:C

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1459:C Subroutine to calculate PIA's under 1965 Act
1460:C
1461: SUBROUTINE PL1965 (IAVGMW,PIASUB,FMBSUB)
1462:C Start with 1958 Act, even for values above the original maximum
1463:C AMW of $400 in the 1958 Act
1464: CALL PL1958 (IAVGMW,PIASUB,FMBSUB)
1465: ITABEL=4
1466:C For AMW's up to $94, increase PIA by $4
1467: IF (IAVGMW.GT.94) GO TO 10
1468: PIASUB=PIASUB+4.
1469:C Minimum PIA of $44
1470: PIASUB=AMAX1(PIASUB,44.)
1471:C MFB of 150% of PIA
1472: FMBSUB=1.5*PIASUB
1473: RETURN
1474:C For AMW's from $95 to $403, increase PIA by 7% (include $401 to $403
1475:C as if from 1958 Act)
1476: 10 IF (IAVGMW.GT.403) GO TO 20
1477: PIASUB=PIASUB*1.07
1478: CALL ROUND (PIASUB,15)
1479: GO TO 30
1480:C For AMW's above $403, increase PIA by $9 to match increase at
1481:C $403 (7% of $127.00 is $8.89), rounded to a dollar
1482: 20 PIASUB=PIASUB+9.
1483:C Find MFB for AMW's up to $314
1484: 30 IF (IAVGMW.GT.314) GO TO 40
1485:C For AMW's from $142 to $314, MFB is same as in 1958 Act
1486: IF (IAVGMW.GE.142) RETURN
1487:C For AMW's up to $141, MFB is 150% of PIA
1488: FMBSUB=1.5*PIASUB
1489: CALL ROUND (FMBSUB,15)
1490: RETURN
1491:C Find MFB for AMW's above $314
1492: 40 IF (IAVGMW.LE.370) GO TO 50
1493:C For AMW's above $370, MFB is $296 plus 40% of AMW above $370
1494: FMBSUB=296+.4*(IAMWT-370)
1495:C MFB is maximum of $368.00
1496: FMBSUB=AMIN1(FMBSUB,368.00)
1497: RETURN
1498:C For AMW's from $315 to $370, MFB is 80% of AMW
1499: 50 FMBSUB=.8*IAMWT
1500: RETURN
1501:C
1502:C Subroutine to calculate PIA's under 1958 Act
1503:C
1504: SUBROUTINE PL1958 (IAVGMW,PIASUB,FMBSUB)
1505: ITABEL=3
1506: IF (IAVGMW.GT.84) GO TO 10
1507:C Up to $84, 1958 Act increased PIA's by $3, rounded up to even
1508:C dollar
1509: PIASUB=3.49+.55*IAVGMW
1510: GO TO 20
1511:C Over $84, 1958 Act increased PIA's by 7% (.5885 equals 1.07
1512:C times the .55 in 1954 Act)

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1513: 10 PIASUB=.5885*AMINO(IAVGMW,110)
1514: PIASUB=PIASUB+.214*AMAXO(0,IAVGMW-110)
1515:C Round to whole dollar
1516: 20 ROUND1=0.
1517: IF (AMOD(PIASUB,1.).GE..49999) ROUND1=1.
1518: PIASUB=PIASUB+ROUND1-AMOD(PIASUB,1.)
1519:C Minimum PIA of $33
1520: PIASUB=AMAX1(PIASUB,33.)
1521:C PIA for AMW of $553 was made ad hoc in 1967 Act
1522: IF (IAVGMW.EQ.553) PIASUB=159.00
1523:C Minimum PIA increased as of August 1961 to $40
1524: IF (IENT(2).GT.1961.OR.(IENT(2).EQ.1961.AND.IENT(1).GE.8))
1525: &PIASUB=AMAX1(PIASUB,40.)
1526:C Calculate maximum family benefit
1527: IF (IAVGMW.LE.127) GO TO 40
1528:C Find the highest AMW giving that same PIA
1529: IAMWT=IAVGMW
1530: 30 IAMWT=IAMWT+1
1531: PIAT=41.195+.214*FLOAT(IAMWT)
1532: ROUND1=0.
1533: IF (AMOD(PIAT,1.).GT..49999) ROUND1=1.
1534: PIAT=PIAT+ROUND1-AMOD(PIAT,1.)
1535: IF (PIAT-PIASUB.LT..1.AND.PIAT-PIASUB.GT.--.1) GO TO 30
1536:C Test AMW is 1 greater than required, except for ad hoc interval
1537:C ending at $553
1538: IF (IAMWT.NE.553) IAMWT=IAMWT-1
1539: FMBSUB=.8*IAMWT
1540: FMBSUB=AMIN1(FMBSUB,254.)
1541: RETURN
1542:C For AMW's up to $127, MFB is 150% of PIA
1543: 40 FMBSUB=1.5*PIASUB
1544: FMBSUB=AMAX1(FMBSUB,PIASUB+20.)
1545: RETURN
1546:C
1547:C Subroutine to calculate PIA's under 1952 Act
1548:C
1549: SUBROUTINE PL1952 (IAVGMW,PIASUB,FMBSUB)
1550:C PIA is 55% of first $100 of AMW plus 15% of excess
1551: PIASUB=.55*AMINO(100,IAVGMW)
1552: PIASUB=PIASUB+.15*AMAXO(0,IAVGMW-100)
1553: CALL ROUND (PIASUB,2)
1554:C Minimum PIA of $25
1555: PIASUB=AMAX1(PIASUB,25.)
1556:C MFB is 80% of AMW
1557: FMBSUB=.8*IAVGMW
1558:C Minimum MFB of $45
1559: FMBSUB=AMAX1(FMBSUB,45.)
1560:C Maximum MFB of $168.75
1561: FMBSUB=AMIN1(FMBSUB,168.75)
1562: ITABEL=1
1563: RETURN
1564:C
1565:C Subroutine to calculate PIA's under 1954 Act
1566:C

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1567:      SUBROUTINE PL1954 (IAVGMW,PIASUB,FMBSUB)
1568:C  PIA is 55% of first $110 of AMW plus 20% of excess
1569:      PIASUB=.55*AMINO(110,IAVGMW)
1570:      PIASUB=PIASUB+.2*AMAX0(0,IAVGMW-110)
1571:      CALL ROUND (PIASUB,4)
1572:C  Minimum PIA of $30
1573:      PIASUB=AMAX1(PIASUB,30.)
1574:C  MFB is 80% of AMW
1575:      FMBSUB=.8*IAVGMW
1576:C  Minimum MFB of $50
1577:      FMBSUB=AMAX1(FMBSUB,50.)
1578:C  Minimum MFB of 150% of PIA
1579:      FMBSUB=AMAX1(FMBSUB,1.5*PIASUB)
1580:C  Maximum MFB of $200
1581:      FMBSUB=AMIN1(FMBSUB,200.)
1582:      ITABEL=2
1583:      RETURN
1584:C
1585:C  Subroutine to round a PIA or MFB to appropriate multiple of $.10
1586:C
1587:C  CRUDE = unrounded, then rounded, PIA or MFB.
1588:C  L      = year of benefit increase, or year prior to year of wage-
1589:C         indexed formula, minus 1950.
1590:C  X100   = 100 times CRUDE.
1591:C  Q      = fraction of $.01 above which PIA is rounded to next higher
1592:C         dime, for June 1981 and earlier benefit increases, and
1593:C         1982 and earlier Wage-Indexed formula AIME PIA'S.
1594:C
1595:      SUBROUTINE ROUND (CRUDE,L)
1596:C  For 1982 and later benefit increases and 1983 and later wage-
1597:C  indexed formulas, go to rounding-down section
1598:      IF (L.GT.31) GO TO 10
1599:C  For rounding-up to dime, use half-cent rule for 1972 and
1600:C  earlier increases; for 1973-81 benefit increases, round up to dime
1601:C  in any case not already an exact multiple of $.10
1602:      IF (L.GE.23) Q=.01
1603:      IF (L.LT.23) Q=.499
1604:      X100=CRUDE*100.
1605:C  If within tolerance of Q, do not round up
1606:      IF (AMOD(X100,10.).LT.Q) RETURN
1607:C  Otherwise round up to dime
1608:      CRUDE=CRUDE+.10-AMOD(X100,10.)/100.
1609:      RETURN
1610:C  Round down to lower dime for June 1982 and later increases
1611:  10 CRUDE=AINT(10.*CRUDE+.001)/10.
1612:      RETURN
1613:C
1614:      END

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