

2.5 Revenues (REVENUES)

2.5.1 OASDI taxable wage liability (WTL)

$$WTL = WTER * TRW$$

Where

TRW	=	OASDI combined employee-employer tax rate
WTL	=	Annual OASDI taxable wage liabilities
WTER	=	Annual OASDI taxable employer wages

2.5.2 OASDI taxable self-employment liability (SEL)

$$SEL = SET * TRSE$$

Where

SEL	=	OASDI taxable self-employment income liabilities
SET	=	OASDI taxable self-employment income
TRSE	=	OASDI self-employment tax rate

2.5.3 OASDI multi-employer refund wage liability (MERL)

$$MERL = MER * TRWEE$$

Where

MERL	=	OASDI multi-employer refund wage liabilities
MER	=	OASDI multi-employer refund wages
TRWEE	=	OASDI employee tax rate

2.5.4 OASDI quarterly taxable wage liability (WTLQ)

Federal Civilian

Annual total wages (OASDI + MQGE)

$$BAFCW = 34198.84$$

$$AWCFC = WCFC / ECFC * BAFCW / AWCFCOT97$$

$$T = \text{MAX} / AWCFC$$

IF(T.LT.0.014620379)THEN

$$FCTR = T - (1.04262 / 1.73) * T ** 1.73$$

ELSE IF(T.LT.0.292407578)THEN

$$FCTR = -(1.22471 / 1.6) * T ** 1.6 + (.826746 / 1.8) * \text{DEXP}(-1.8 * T) + 1.8535 * T - .459368449$$

ELSE IF(T.LT.0.760259704)THEN

$$FCTR = -(.635082 / 2D0) * T ** 2 + (.604884 / 2.9) * T ** 2.9 - (.403213 / 4.6) * T ** 4.6 + .910343 * T + .002291358$$

ELSE IF(T.LT.1.228111829)THEN

$$FCTR = -(1.62181 / 1.7) * T ** 1.7 + (.143632 / 2.7) * T ** 2.7 - (.312012 / 3.4) * T ** 3.4 + .841165 * T + .011332647$$

ELSE IF(T.LT.1.520519407)THEN

$$FCTR = -(1.34084 / 3.5) * T ** 3.5 + (1.09868 / 5D0) * T ** 5 - (.404253 / 5.8) * T ** 5.8 + 1.17397 * T - .222555715$$

ELSE IF(T.LT.2.339260627)THEN

$$FCTR = (.671304 / 5) * \text{DEXP}(-.5 * T) - (3.27076 / 1.4) * \text{DEXP}(-1.4 * T) + .126626 * T + .353367869$$

ELSE IF(T.LT.3.50889094)THEN

$$FCTR = (.0571643 / .95) * \text{DEXP}(-.95 * T) - (3.17633 / 1.8) * \text{DEXP}(-1.8 * T) + .000623031 * T + .996284293$$

ELSE IF(T.LT.4.970928832)THEN

$$FCTR = -(12.3148 / 2.25) * \text{DEXP}(-2.25 * T) + .0000698013 * T + .999222265$$

ELSE

$$FCTR = -(0.285502 / 2D0) * T ** (-2D0) + 1.00007094$$

END IF

$$WTFCTOT = FCTR * WCFC$$

Where

AWCFC	=	Average covered Federal Civilian wages (OASDI plus MQGE)
AWCFCTOT97	=	Average covered Federal Civilian wages (OASDI plus MQGE) for 1997
BAFCW	=	Average Federal Civilian wages (OASDI plus MQGE) in 1% sample data for 1997 used to produce equations
ECFC	=	Covered Federal Civilian employment (OASDI plus MQGE)
FCTR	=	Ratio of taxable to covered Federal Civilian wages (OASDI plus MQGE)
MAX	=	OASDI taxable maximum
T	=	Ratio of the OASDI taxable maximum to average covered Federal Civilian wages (OASDI plus MQGE)

WCFC = Covered Federal Civilian wages (OASDI plus MQGE)
WTFCTOT = Taxable Federal Civilian wages (OASDI plus MQGE)

Annual MQGE wages

BAFCW = 50147.72

AWCFC = WCFC / ECFC * BAFCW / AWCFC97

T = MAX / AWCFC

IF(T.LT.0.019941085)THEN

FCTR=T-(0.0450661/1.47)*T**1.47

ELSE IF(T.LT.0.099705424)THEN

FCTR=(-.0518044/1.9)*T**1.9-(.0368056/2.3)*T**2.3+.99479*T+.0000248091

ELSE IF(T.LT.0.358939528)THEN

FCTR=(-.05907/1.25)*T**1.25-(.0746657/2.9)*T**2.9+1.02092*T-.00032173

ELSE IF(T.LT.0.558350377)THEN

FCTR=(-2.4664/1.4)*T**1.4+(4.82919/2.3)*T**2.3-(3.97473/3)*T**3+1.83998*T-.026694932

LSE IF(T.LT.0.797643395)THEN

FCTR=(.609091/2.1)*T**2.1-(1.16086/4)*T**4+.788373*T+.043208139

ELSE IF(T.LT.1.196465093)THEN

FCTR=(2.35647/4)*DEXP(-.4*T)-(3.87811/1.2)*DEXP(-1.2*T)-(1.1179/2.5)*DEXP(-2.5*T)+.738296*T-2.83402534

ELSE IF(T.LT.1.694992215)THEN

FCTR=(-.422884/1.3)*DEXP(-1.3*T)-(6.90241/3D0)*DEXP(-3*T)-.0229917*T+1.068147457

ELSE IF(T.LT.2.592341034)THEN

FCTR=(-.557032/1.2)*DEXP(-1.2*T)-(5.40739/2.2)*DEXP(-2.2*T)+.0102014*T+.960037325

ELSE

FCTR=(-(32.3187/3.5)*DEXP(-3.5*T)+1.000030482

END IF

WTFCHO=FCTR*WCFC

Where

AWCFC = Average covered Federal Civilian MQGE wages
AWCFC97 = Average covered Federal Civilian MQGE wages for 1997
BAFCW = Average Federal Civilian MQGE wages in 1% sample data for 1997 used to produce equations
ECFC = Covered Federal Civilian MQGE employment
FCTR = Ratio of taxable to covered Federal Civilian MQGE wages
MAX = OASDI taxable maximum
T = Ratio of the OASDI taxable maximum to average covered Federal Civilian MQGE wages
WCFC = Covered Federal Civilian MQGE wages
WTFCHO = Taxable Federal Civilian MQGE wages

Annual OASDI taxable wages

WTFC = WTFCTOT - WTFCHO

Where

WTFC = Annual OASDI taxable Federal Civilian wages
WTFCHO = Taxable Federal Civilian MQGE wages
WTFCTOT = Taxable Federal Civilian wages (OASDI plus MQGE)

Quarterly OASDI covered wages

CFCQD(1) = .98357 * TCFCD(I,1) + FCPD(I,1)

CFCQD(2) = .98909 * TCFCD(I,2) + FCPD(I,2)

CFCQD(3) = 1.01833 * TCFCD(I,3) + FCPD(I,3)

CFCQD(4) = 1.00814 * TCFCD(I,4) + FCPD(I,4)

QWCFCOD(J) = CFCQD(J) * WTFC

Where

CFCQD = Proportion of annual OASDI covered Federal Civilian wages paid in each quarter
FCPD = Payday variable for Federal Civilian wages based on calendar
I = Calendar year
J = Quarter
TCFCD = Proportion of annual NIPA Federal Civilian wages paid in each quarter
QWCFCOD = Quarterly OASDI covered Federal Civilian wages
WTFC = Annual OASDI taxable Federal Civilian wages

Quarterly OASDI taxable wages

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IF(FCTR.LE.0.928)FCQD(2)=CFCQD(2)+.27522*(1.-FCTR)-.15127*(1.-FCTR)**2+.35146*(1.-FCTR)**3
IF(FCTR.LE.0.993)THEN
  FCQD(3)=CFCQD(3)+.28047*(1.-FCTR)-.473021*(1.-FCTR)**2+.253606*(1.-FCTR)**3-58.1741*(1.-FCTR)**4+.451465*(1.-FCTR)**5
  FCQD(4)=CFCQD(4)-.75095*(1.-FCTR)+3.65109*(1.-FCTR)**2-16.9355*(1.-FCTR)**3+23.9578*(1.-FCTR)**4
END IF
First quarter is always 100 percent taxable.
QWTFC(I,1)=QWCFC(I,1)
IF(FCTR.LE.0.928)THEN
  Compute taxable for 2nd-4th quarter.
  FCQ=FCQD(2)+FCQD(3)+FCQD(4)
  WTFC2=WTFC-QWTFC(I,1)
  FCQD(2:4)=FCQD(2:4)/FCQ
  QWTFC(I,2:4)=FCQD(2:4)*WTFC2
ELSE IF(FCTR.LE.0.993)THEN
  Second quarter covered is completely taxable.
  QWTFC(I,2)=QWCFC(I,2)
  QWTFC(I,3)=FCQD(3)*WTFC
  QWTFC(I,4)=WTFC-QWTFC(I,1)-QWTFC(I,2)-QWTFC(I,3)
ELSE
  Second and third quarter covered is completely taxable.
  QWTFC(I,2)=QWCFC(I,2)
  QWTFC(I,3)=QWCFC(I,3)
  QWTFC(I,4)=WTFC-QWTFC(I,1)-QWTFC(I,2)-QWTFC(I,3)
END IF
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Where

CFCQD	=	Proportion of annual OASDI covered Federal Civilian wages paid in each quarter
FCQ	=	Sum of proportions of annual OASDI covered Federal Civilian wages paid in each quarter for quarters two to four
FCQD	=	Proportion of annual OASDI taxable Federal Civilian wages paid in each quarter
FCTR	=	Ratio annual OASDI taxable to covered Federal Civilian wages
I	=	Calendar year
TCFCD	=	Proportion of annual NIPA Federal Civilian wages paid in each quarter
QWCFC	=	Quarterly OASDI covered Federal Civilian wages
QWTFC	=	Quarterly OASDI taxable Federal Civilian wages
WTFC	=	Annual OASDI taxable Federal Civilian wages
WTFC2	=	Total OASDI taxable Federal Civilian wages paid in quarters two to four

Quarterly OASDI taxable wage liabilities

WTLQFCEE(I, J)	=	QWTFC(I, J) * TRWEE(I)
WTLQFCER(I, J)	=	QWTFC(I, J) * TRWER(I)
WTLQFC(I, J)	=	WTLQFCEE(I, J) + WTLQFCER(I, J)

Where

I	=	Calendar year
J	=	Quarter
TRWEE	=	OASDI employee tax rate
TRWER	=	OASDI employer tax rate
WTLQFC	=	Quarterly OASDI taxable Federal Civilian combined employee-employer wage liabilities
WTLQFCEE	=	Quarterly OASDI taxable Federal Civilian employee wage liabilities
WTLQFCER	=	Quarterly OASDI taxable Federal Civilian employer wage liabilities

Military wages

Annual OASDI taxable wages

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BACMW = 16439.95
ACMW = AWCML * BACMW / AWCML97
T = MAX / ACMW
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IF(T.LT.0.060827432)THEN
  MTR=T-(.712875/2)*T**2
ELSE IF(T.LT.0.182482295)THEN
  MTR=(.71197/1.8)*T**1.8-(1.59752/2D0)*T**2+.97587*T+0.000542413
ELSE IF(T.LT.0.608274315)THEN
  MTR=-(1.75026/2D0)*T**2+(2.86837/3D0)*T**3-(1.90346/4D0)*T**4+1.10056*T-.006441373
ELSE IF(T.LT.1.094893767)THEN
  MTR=-(.700864/1.4)*T**1.4-(.40042/3.3)*T**3.3+(.197091/4.1)*T**4.1+1.33615*T-.056637087
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ELSE IF(T.LT.1.703168082)THEN
  MTR=(21.3527/.3)*DEXP(-.3*T)-(21.1277/0.5)*DEXP(-.5*T)+(2.73027/1.1)*DEXP(-1.1*T)+4.34833*T-31.56802874
ELSE IF(T.LT.2.311442397)THEN
  MTR=-(33.3894/1.2)*T**1.2+(14.9436/1.6)*T**1.6-(2.58041/2.1)*T**2.1+21.3365*T-.872981629
ELSE IF(T.LT.3.163026438)THEN
  MTR=-(.076094/.3)*DEXP(-.3*T)-(1.59668/1.4)*DEXP(-1.4*T)-.0271355*T+1.182946986
ELSE IF(T.LT.4.257920205)THEN
  MTR=-(.482918/1.5)*T**1.5-(9.21141/.9)*DEXP(-.9*T)+(25.93/1.5)*DEXP(-1.5*T)-1.14706*T+3.246003821
ELSE
  MTR=-(9.00723/1.8)*DEXP(-1.8*T)+1.000285789
END IF
WTML=MTR*WCML

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Where

ACMW	=	Average OASDI covered military wages adjusted for level used to produce equations
AWCML	=	Average OASDI covered military wages
AWCML97	=	Average OASDI covered military wages in 1997
BACMW	=	Average OASDI covered military wages in 1% sample data for 1997 used to produce equations
MAX	=	OASDI taxable maximum
MTR	=	Ratio of OASDI taxable to covered military wages
T	=	Ratio of the OASDI taxable maximum to average covered military wages
WCML	=	Annual OASDI covered military wages
WTML	=	Annual OASDI taxable military wages

Quarterly OASDI covered wages

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CMLQD(1) = .97978*TCMLD(I,1)*MLPD(I,1)
CMLQD(2) = 1.002*TCMLD(I,2)*MLPD(I,2)
CMLQD(3) = 1.02145*TCMLD(I,3)*MLPD(I,3)
CMLQD(4) = .99689*TCMLD(I,4)*MLPD(I,4)
QWCML = CMLQD(J)*WCML

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Where

CMLQD	=	Proportion of annual OASDI covered military wages paid in each quarter
I	=	Calendar year
J	=	Quarter
MLPD	=	Payday variable for military wages based on calendar
QWCML	=	Quarterly OASDI covered military wages
TCMLD	=	Proportion of annual NIPA military wages paid in each quarter
WCML	=	Annual OASDI covered military wages

Quarterly OASDI taxable wages

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T=MAX/AWCML
IF(MLTR.LT.0.776)QML(1)=CMLQD(1)+.393565-.018307*T-3.44641/T+15.6381/T**2-40.0168/T**3+62.0449/T**4-
57.525/T**5+30.2498/T**6-7.8664/T**7+.674629/T**8
IF(MLTR.LT.0.952)QML(2)=CMLQD(2)+.844748-.0401062*T-7.24247/T+32.4957/T**2-83.3328/T**3+129.374/T**4-
122.526/T**5+68.2737/T**6-20.1479/T**7+2.34289/T**8
IF(MLTR.LT.0.985)QML(3)=CMLQD(3)-2.62266+.125592*T+22.5832/T-105.727/T**2+300.027/T**3-540.915/T**4+622.304/T**5-
441.658/T**6+175.722/T**7-29.8987/T**8
IF(MLTR.LT.1.)QML(4)=CMLQD(4)+2.37295-.111565*T-21.1954/T+106.049/T**2-330.637/T**3+658.869/T**4-
835.626/T**5+648.641/T**6-279.392/T**7+50.9246/T**8
IF(MLTR.LT.0.776)THEN
  QWTML(I,1:4)=QML(1:4)*WTML
ELSE IF(MLTR.LT.0.952)THEN
  QWTML(I,1)=QWCML(I,1)
  TOTWG1=WTML-QWTML(I,1)
  Q1=QML(2)+QML(3)+QML(4)
  QML(2:4)=QML(2:4)/Q1
  QWTML(I,2:4)=QML(2:4)*TOTWG1
ELSE IF(MLTR.LT.0.985)THEN
  QWTML(I,1)=QWCML(I,1)
  QWTML(I,2)=QWCML(I,2)
  TOTWG1=WTML-QWTML(I,1)-QWTML(I,2)
  Q1=QML(3)+QML(4)
  QML(2:4)=QML(2:4)/Q1
  QWTML(I,2:4)=QML(2:4)*TOTWG1
ELSE IF(MLTR.LT.1.)THEN
  QWTML(I,1)=QWCML(I,1)
  QWTML(I,2)=QWCML(I,2)

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$QWTML(I,3)=QWCML(I,3)$
 $QWTML(I,4)=WTML-QWTML(I,1)-QWTML(I,2)-QWTML(I,3)$
 END IF

Where

AWCML = Average OASDI covered military wages
 CMLQD = Proportion of annual OASDI covered military wages paid in each quarter
 MLTR = Ratio of OASDI taxable to covered military wages
 MAX = OASDI taxable maximum
 I = Calendar year
 Q1 = Sum of proportions of annual OASDI taxable military wages paid in each quarter for last three or two quarters in year
 QML = Proportion of annual OASDI taxable military wages paid in each quarter
 QWCML = Quarterly OASDI covered military wages
 QWTML = Quarterly OASDI taxable military wages
 T = Ratio of the OASDI taxable maximum to average covered military wages
 TOTWG1 = Annual OASDI taxable military wages for all quarters except first or first and second
 WTML = Annual OASDI taxable military wages

Quarterly OASDI taxable wage liabilities

$WTLQMLEE(I, J) = QWTML(I, J) * TRWEE(I)$
 $WTLQMLER(I, J) = QWTML(I, J) * TRWER(I)$
 $WTLQML(I, J) = WTLQMLEE(I, J) + WTLQMLER(I, J)$

Where

I = Calendar year
 J = Quarter
 TRWEE = OASDI employee tax rate
 TRWER = OASDI employer tax rate
 WTLQML = Quarterly OASDI taxable military combined employee-employer wage liabilities
 WTLQMLEE = Quarterly OASDI taxable military employee wage liabilities
 WTLQMLER = Quarterly OASDI taxable military employer wage liabilities

Federal

$WCF = WCFC + WCML$
 $QWCF = QWCFC + QWCML$
 $WTF = WTFC + WTML$
 $QWTF = QWTFC + QWTML$
 $WTLQFEE(I,J) = QWTF(I,J) * TRWEE(I)$
 $WTLQFER(I,J) = QWTF(I,J) * TRWER(I)$
 $WTLQF(I,J) = WTLQFEE(I,J) + WTLQFER(I,J)$

Where

I = Calendar year
 J = Quarter
 QWCF = Quarterly OASDI covered Federal wages
 QWCF C = Quarterly OASDI covered Federal Civilian wages
 QWCML = Quarterly OASDI covered military wages
 QWTF = Quarterly OASDI taxable Federal wages
 QWTFC = Quarterly OASDI taxable Federal Civilian wages
 QWTML = Quarterly OASDI taxable military wages
 WCF = Annual OASDI covered Federal wages
 WCFC = Annual OASDI covered Federal Civilian wages
 WCML = Annual OASDI covered military wages
 WTF = Annual OASDI taxable Federal wages
 WTFC = Annual OASDI taxable Federal Civilian wages
 WTLQF = Quarterly OASDI taxable Federal combined employee-employer wage liabilities
 WTLQFEE = Quarterly OASDI taxable Federal employee wage liabilities
 WTLQFER = Quarterly OASDI taxable Federal employer wage liabilities
 WTML = Annual OASDI taxable military wages

State and Local wages

Annual OASDI taxable wages

$BACW = 21583.61$
 $AWCSL = WCSL / ESLC * BACW / AWCSLOD97$
 $S = MAX / ASLC$
 IF(S.LT.0.02316573)THEN

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SLTR=S-(1.1803/1.71)*S**1.71
ELSE IF(S.LT.0.463314609)THEN
SLTR=-(1.54738/1.6)*S**1.6-(.421147/2.5)*S**2.5+(3.34881/.5)*DEXP(-.5*S)+4.39012*S-6.697774474
ELSE IF(S.LT.0.833966296)THEN
SLTR=-(.756943/1.8)*S**1.8+(.485982/2.3)*S**2.3-(.175681/3.2)*S**3.2+.88749*S+.004652169
ELSE IF(S.LT.1.945921357)THEN
SLTR=(3.4167/.3)*DEXP(-.3*S)-(7.26467/.9)*DEXP(-.9*S)+(4.57049/1.5)*DEXP(-1.5*S)+1.0378*S-6.245057503
ELSE IF(S.LT.3.243202261)THEN
SLTR=-(2.40293/.2)*DEXP(-.2*S)+(6.44952/.4)*DEXP(-.4*S)-(5.64852/.6)*DEXP(-.6*S)-.278204*S+5.099074279
ELSE IF(S.LT.5.559775305)THEN
SLTR=-(.0434955/.6)*DEXP(-.6*S)-(4.00403/1.7)*DEXP(-1.7*S)+.00006219*S+.997065459
ELSE IF(S.LT.18.53258435)THEN
SLTR=-(.0272758/.5)*DEXP(-.5*S)+.0000671826*S+.997657785
ELSE
SLTR=-(.00861948/.7)*S**(-.7)+1.000492941
END IF
WTSL=SLTR*WCSL

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Where

AWCSL	=	Average OASDI covered State and Local wages adjusted for average wage used to produce equations
AWCSLOD97	=	Average OASDI covered State and Local wages for 1997
BACW	=	Average OASDI covered State and Local wages in 1% sample data for 1997 used to produce equations
ESLC	=	OASDI covered State and Local employment
MAX	=	OASDI taxable maximum
S	=	Ratio of the OASDI taxable maximum to average covered State and Local wages
SLTR	=	Ratio of OASDI taxable to covered State and Local wages
WCSL	=	OASDI covered State and Local wages
WTSL	=	OASDI taxable State and Local wages

Quarterly OASDI covered wages

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CSLQD(1)=1.0131455*TCSLD(I,1)+SLPD(I,1)
CSLQD(2)=1.0431906*TCSLD(I,2)+SLPD(I,2)
CSLQD(3)=.9060524*TCSLD(I,3)+SLPD(I,3)
CSLQD(4)=1.0365866*TCSLD(I,4)+SLPD(I,4)
QWCSL=CSLQD(1:4)*WCSL

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Where

CSLQD	=	Proportion of annual OASDI covered State and Local wages paid in each quarter
I	=	Calendar year
QWCSL	=	Quarterly OASDI covered State and Local wages
SLPD	=	Payday variable for State and Local wages based on calendar
TCSLD	=	Proportion of annual NIPA State and Local wages paid in each quarter
WCSL	=	Annual OASDI covered State and Local wages

Quarterly OASDI taxable wages

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QSL(1)=(CSLQD(1)-.24087*(1.-1./SLTR))
QSL(2)=(CSLQD(2)-1.0492*(1.-1./SLTR)+.51259*(1.-1./SLTR**2)-.07643*(1.-1./SLTR**3))
QSL(3)=(CSLQD(3)-5.99032*(1.-SLTR**2)+13.238*(1.-SLTR**3)-11.3291*(1.-SLTR**4)+3.52237*(1.-SLTR**5))
QSL(4)=(CSLQD(4)+8.99897*(1.-SLTR**.25)-5.48866*(1.-SLTR**.5))
TQSL=QSL(2)+QSL(3)+QSL(4)
QSL(2:4)=QSL(2:4)/TQSL
QWTSL(I,1)=QSL(1)*WTSL
QWTSL(I,2:4)=QSL(2:4)*(WTSL-QWTSL(I,1))

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Where

CSLQD	=	Proportion of annual OASDI covered State and Local wages paid in each quarter
I	=	Calendar year
QSL	=	Proportion of annual OASDI taxable State and Local wages paid in each quarter
QWTSL	=	Quarterly OASDI taxable State and Local wages
SLTR	=	Ratio of OASDI taxable to covered State and Local wages
WTSL	=	OASDI taxable State and Local wages

Quarterly OASDI taxable wage liabilities

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WTLQSL(I,J) = QWTSL(I,J) * TRW(I)

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Where

I	=	Calendar year
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J = Quarter
 TRW = OASDI combined employee-employer tax rate
 WTLQSL = Quarterly OASDI taxable State and Local combined employee-employer wage liabilities

Private household quarterly OASDI taxable wages and liabilities

$QWTPHH(I,J) = WCPHH(I) * QDPHH(J)$
 $WTLQPHH(I,J) = QWTPHH(I,J) * TRW(I)$

Where

I = Calendar year
 J = Quarter
 QDPHH = Proportion of annual OASDI taxable private household wages paid in each quarter
 QWTPHH = Quarterly OASDI taxable private household wages
 TRW = OASDI combined employee-employer tax rate
 WCPHH = Annual OASDI covered private household wages
 WTLQPHH = Quarterly OASDI taxable private household combined employee-employer wage liabilities

Farm taxable wages

Annual OASDI

BAFMW = 7467.91
 AWCfm97 = ACFMW(1997)
 $F = \text{MAX} / (\text{ACFMW} * \text{BAFMW} / \text{AWCFM97})$

IF(F.LT.0.066953142)THEN
 FMTR=F-(1.30211/1.75)*F**1.75
 ELSE IF(F.LT.0.401718855)THEN
 FMTR=-(1.18244/1.35)*F**1.35+(.25412/1.75)*F**1.75+1.24681*F-.001598087
 ELSE IF(F.LT.0.669531425)THEN
 FMTR=-(.508764/.6)*DEXP(-.6*F)-(.300083/2.8)*DEXP(-2.8*F)+.0188542*F+.966550312
 ELSE IF(F.LT.1.87468799)THEN
 FMTR=-(.638146/.6)*DEXP(-.6*F)-(.0322774/1.5)*DEXP(-1.5*F)-.033706*F+1.133974442
 ELSE IF(F.LT.2.41031313)THEN
 FMTR=-(2.64644/1.1)*DEXP(-1.1*F)+(17.4638/2)*DEXP(-2*F)-(26.4191/2.5)*DEXP(-2.5*F)+.00686748*F+.909154345
 ELSE IF(F.LT.4.82062626)THEN
 FMTR=-(1.06567/1.3)*F**1.3+(-.073837/2.1)*F**2.1+1.31021*F-.007628879
 ELSE IF(F.LT.6.427501679)THEN
 FMTR=-(.178355/.5)*DEXP(-.5*F)-(1.70356/1.3)*DEXP(-1.3*F)+.00115171*F+.959096096
 ELSE IF(F.LT.10.7125028)THEN
 FMTR=-(.0474377/0.35)*DEXP(-.35*F)-(1.32456/1)*DEXP(-1*F)+.0016146*F+.957903052
 ELSE IF(F.LT.11.38203422)THEN
 FMTR=-(.0581938/.35)*DEXP(-.35*F)+.00130453*F+.961918378
 ELSE IF(F.LT.24.1031313)THEN
 FMTR=-(.0492564/.3)*DEXP(-.3*F)+.000761577*F+.97040299
 ELSE
 FMTR=-(.00304904/.06)*DEXP(-.06*F)+1.000606299
 END IF
 TFMW=FMTR*WCFM

Where

ACFMW = Annual average OASDI covered farm wages
 AWCfm97 = Annual average OASDI covered farm wages for 1997
 BAFMW = Average farm wage in 1% sample data for 1997 used to produce equations
 F = Ratio of taxable maximum to annual average OASDI covered farm wages adjusted for average wage used in equations
 FMTR = Ratio of OASDI taxable to covered farm wages
 MAX = OASDI taxable maximum
 TFMW = Annual OASDI taxable farm wages

Quarterly OASDI wages and liabilities

$QWTFM(I,J) = TTFMD(I,J) * TFMW$
 $WTLQFM(I,J) = QWTFM(I,J) * TRW(I)$

Where

I = Calendar year
 J = Quarter
 QWTFM = Quarterly OASDI taxable farm wages

TFMW	=	Annual OASDI taxable farm wages
TRW	=	OASDI com
TTFMD	=	Proportion of annual OASDI taxable farm wages paid in each quarter
WTLQFM	=	Quarterly OASDI taxable farm combined employee-employer wage liabilities

Quarterly OASDI taxable employee tips

$QWTTIPSEE(I,J) = QDTIP(J) * WTTIPSEE(I)$
 $QWTTIPSEE(I,2) = QWTTIPSEE(I,1) + WTTIPSSR(I)$
 $WTLQIPSEE(I,J) = QWTTIPSEE(I,J) * TRW(I)$

Where

I	=	Calendar year
J	=	Quarter
QDTIP	=	Proportion of annual OASDI taxable tips received in each quarter
QWTTIPSEE	=	Quarterly OASDI taxable tips received by employees
WTLQIPSEE	=	Quarterly OASDI combined employee-employer wage liabilities on taxable tips received by employees
TRW	=	OASDI combined employee-employer tax rate
WTTIPSEE	=	Annual OASDI taxable tips received by employees reported by employers
WTTIPSSR	=	Annual OASDI taxable tips received by employees self-reported on income tax returns

Private nonfarm OASDI taxable wages and liabilities

Annual

$WTPNF = WTER - WTFC - WTML - WTSL - TFMW - WTTIPSEE - WTTIPSSR$

Where

TFMW	=	Annual OASDI taxable farm wages
WTSL	=	Annual OASDI taxable State and Local wages
WTFC	=	Annual OASDI taxable Federal Civilian wages
WTPNF	=	Annual OASDI taxable private nonfarm wages excluding tips
WTTIPSEE	=	Annual OASDI taxable tips received by employees reported by employers
WTTIPSSR	=	Annual OASDI taxable tips received by employees self-reported on income tax returns
WTER	=	Annual OASDI taxable employer wages

Quarterly

$BACW93 = 21912.00$
 $NACW = BACW93 / ACW93 * AWC$
 $X = MAX / NACW$
IF(X.LT.0.91274)THEN
 $TWTR = 1D0 + .990751 * DEXP(X) ** (-1) / (-1) - .013904602$
ELSE IF(X.LT.2.05367)THEN
 $TWTR = 1D0 + (-.003129 * X + (1.167562 * DEXP(X) ** (-1.17) / (-1.17))) - .065747345$
ELSE IF(X.LT.4.791895)THEN
 $TWTR = 1D0 + (.003962 * X + (.770093 * X ** (-1.85053) / (-1.85053))) - .06071106$
ELSE
 $TWTR = 1D0 + (.267708 * X ** (-.94) / (-.94)) + .00066$
END IF
IF(TWTR.LT.0.70)THEN
 $QP(1) = (-0.000575 + 0.18692 * DLOG(TWTR) - 0.23133 * DLOG(TWTR) ** 2 - 0.10453 * DLOG(TWTR) ** 3 + 0.04306 * DLOG(TWTR) ** 4 + 0.01906 * DLOG(TWTR) ** 5) - 0.0325201 + PD(1) + TCPD(I,1)$
 $QP(2) = (-0.00657 + 1.7015 * TWTR - 8.60615 * TWTR ** 2 + 14.444 * TWTR ** 3 - 9.97171 * TWTR ** 4 + 2.42519 * TWTR ** 5) - 0.0080956 + PD(2) + TCPD(I,2)$
 $QP(3) = (-0.12167 + 1.31142 * TWTR ** 3 - 6.31672 * TWTR ** 4 + 8.03785 * TWTR ** 5 - 3.15412 * TWTR ** 6) + 0.019325 + PD(3) + TCPD(I,3)$
 $QP(4) = (-0.1548 - 0.41354 * TWTR ** 5 + 0.25874 * TWTR ** 7) + 0.0197767 + PD(4) + TCPD(I,4)$
ELSE IF(TWTR.LT.0.88)THEN
 $QP(1) = 0.224763 - 0.237056 * TWTR + PD(1) + TCPD(I,1)$
 $QP(2) = 0.190385 - 0.209676 * TWTR + 0.00176 * (TWTR - 0.7) / (0.88 - 0.7) + PD(2) + TCPD(I,2)$
 $QP(3) = -0.052523 + 0.05309 * TWTR + PD(3) + TCPD(I,3)$
 $QP(4) = -0.354571 + 0.38249 * TWTR + PD(4) + TCPD(I,4)$
ELSE
 $QP(1) = 0.968092 - 1.877574 * TWTR + 0.904348 * TWTR ** 2 + PD(1) + TCPD(I,1)$
 $QP(2) = -0.468266 + 1.148107 * TWTR - 0.690132 * TWTR ** 2 + PD(2) + TCPD(I,2)$
 $QP(3) = -0.850885 + 1.824094 * TWTR - 0.981557 * TWTR ** 2 + PD(3) + TCPD(I,3)$
 $QP(4) = 0.350767 - 1.093966 * TWTR + 0.766972 * TWTR ** 2 + PD(4) + TCPD(I,4)$
END IF
IF(PTR.LT.0.86)THEN
 $QP(J) = QP(J) + ADJTP(J)$

ELSE
 IF((ADJCP(J)-ADJTP(J)).NE.0D0)QP(J)=QP(J)+ADJTP(J)+((PTR-BPTR)/(1.-BPTR))**4*(ADJCP(J)-ADJTP(J))
 END IF
 QWTPNF(I, J) = QP(J) * WTPNF(I) + QWTTIPSEE(I, J) + QWTPHH(I, J)
 QWTPNF(I, 2) = QWTPNF(I, 2) + WTTIPSSR(I)

Where

ACW93	=	Annual average OASDI covered wage for 1993
AWC	=	Annual average OASDI covered wage for current year
BACW93	=	Annual average OASDI covered wage for 1993 from actual data used to determine taxable to covered wage equations
I	=	Calendar year
J	=	Quarter
MAX	=	Annual OASDI taxable maximum
NACW	=	Annual average OASDI covered wage for current year adjusted for average from actual data used to determine equations
PD	=	Payday variable for private nonfarm based on calendar
QP	=	Proportion of annual OASDI taxable private nonfarm wages excluding taxable tips paid in each quarter
QWTPNF	=	Quarterly OASDI taxable private nonfarm wages including tips
TCPD	=	Proportion of annual NIPA private wages paid in each quarter
TWTR	=	Ratio of OASDI taxable to covered wages computed using equations based on data for 1993
X	=	Ratio of annual OASDI taxable maximum to adjusted annual average OASDI covered wage (NACW)

Quarterly OASDI wage liabilities

WTLQPNF(I,J) = (QWTPNF(I,J) – QWTPHH(I,J)) * TRW(I)

Where

QWTPHH	=	Quarterly OASDI taxable private household wages
QWTPNF	=	Quarterly OASDI taxable private nonfarm wages including tips
TRW	=	OASDI combined employee-employer tax rate
WTLQPNF	=	Quarterly OASDI tax liabilities from taxable private nonfarm wages including tips, excluding private household taxable wages

Total quarterly OASDI taxable wages and wage liabilities

QWT(I,J) = QWTPNF(I,J) + QWTF(I,J) + QWTSL(I,J) + QWTFM(I,J)
 WTLQ(I,J) = QWT(I,J) * TRW(I)

Where

I	=	Calendar year
J	=	Quarter
QWT	=	Quarterly OASDI taxable wages
QWTF	=	Quarterly OASDI taxable Federal wages
QWTFM	=	Quarterly OASDI taxable farm wages
QWTPNF	=	Quarterly OASDI taxable private nonfarm wages including tips
QWTSL	=	Quarterly OASDI taxable State and Local wages
WTLQ	=	Quarterly OASDI taxable wage liabilities

2.5.5 OASDI quarterly taxable wage liability collections (WTLQC)

OASDI taxable private nonfarm wages by sub-quarterly periods

PTR = WTP/WCP
 MR = MAR(I) - .04346*(1.-PTR) + .08497*(1.-PTR)**2
 JR = JUN(I) - .02627*(1.-PTR) - .26844*(1.-PTR)**2
 SR = SEP(I) - .12321*(1.-PTR) - .02344*(1.-PTR)**2
 DR = DEC(I) - .12468*(1.-PTR) - .20710*(1.-PTR)**2
 MWTP(1) = QWTP(I,1)*MR
 MWTP(2) = QWTP(I,1) - MWTP(1)
 MWTP(3) = QWTP(I,2)*JR
 MWTP(4) = QWTP(I,2) - MWTP(3)
 MWTP(5) = QWTP(I,3)*SR
 MWTP(6) = QWTP(I,3) - MWTP(5)
 MWTP(7) = QWTP(I,4)*DR
 MWTP(8) = QWTP(I,4) - MWTP(7)

Where

DEC	=	Proportion of fourth quarter OASDI covered private nonfarm wages (excluding tips and household) paid in December
DR	=	Proportion of fourth quarter OASDI taxable private nonfarm wages (excluding tips and household) paid in December

I = Calendar year
 JR = Proportion of second quarter OASDI taxable private nonfarm wages (excluding tips and household) paid in June
 JUN = Proportion of second quarter OASDI covered private nonfarm wages (excluding tips and household) paid in June
 MAR = Proportion of first quarter OASDI covered private nonfarm wages (excluding tips and household) paid in March
 MR = Proportion of first quarter OASDI taxable private nonfarm wages (excluding tips and household) paid in March
 MWTP = OASDI taxable private nonfarm wages (excluding tips and household) paid in last month and in first two months of quarter
 PTR = Ratio of annual OASDI taxable private nonfarm wages (excluding tips and household) to covered private nonfarm wages
 QWTP = Quarterly OASDI taxable private nonfarm wages (excluding tips and household)
 SEP = Proportion of third quarter OASDI covered private nonfarm wages (excluding tips and household) paid in September
 SR = Proportion of third quarter OASDI taxable private nonfarm wages (excluding tips and household) paid in September
 WCP = Annual OASDI covered private nonfarm wages
 WTP = Annual OASDI taxable private nonfarm wages (excluding tips and household)

OASDI taxable private nonfarm wages collected on in same quarter wages are paid

```

TRAT =RATEE(I,5)
CA =.95
MWCP(1)=QWSCPNT(I,1)*MAR(I)
MWCP(2)=QWSCPNT(I,1)-MWCP(1)
MWCP(3)=QWSCPNT(I,2)*JUN(I)
MWCP(4)=QWSCPNT(I,2)-MWCP(3)
MWCP(5)=QWSCPNT(I,3)*SEP(I)
MWCP(6)=QWSCPNT(I,3)-MWCP(5)
MWCP(7)=QWSCPNT(I,4)*DEC(I)
MWCP(8)=QWSCPNT(I,4)-MWCP(7)
RCSM =.80
QRMREQ=750.
QRWREQ=11250.
RMF=70786.*WSP(I)/1001400.
CALL ITERNU(QRMREQ,MWTP(2),MWCP(2),TRAT,RMF,PWCS(1))
CALL ITERNU(QRWREQ,MWTP(1),MWCP(1),TRAT,RMF,PWCE(1))
CALL ITERNU(QRMREQ,MWTP(4),MWCP(4),TRAT,RMF,PWCS(2))
CALL ITERNU(QRWREQ,MWTP(3),MWCP(3),TRAT,RMF,PWCE(2))
CALL ITERNU(QRMREQ,MWTP(6),MWCP(6),TRAT,RMF,PWCS(3))
CALL ITERNU(QRWREQ,MWTP(5),MWCP(5),TRAT,RMF,PWCE(3))
CALL ITERNU(QRMREQ,MWTP(8),MWCP(8),TRAT,RMF,PWCS(4))
CALL ITERNU(QRWREQ,MWTP(7),MWCP(7),TRAT,RMF,PWCE(4))
DO J=1,4
  QWTPC(I,J)=PWCS(J)+PWCE(J)*RCSM*CA
  QWTPF(I,J)=QWSTXPHH(I,J)-QWTPC(I,J)
END DO
  
```

Where

AWCODXSRT = Annual average OASDI covered private nonfarm wages (excluding household)
 CA = Compliance allowance
 DEC = Proportion of fourth quarter OASDI covered private nonfarm wages (excluding tips and household) paid in December
 I = Calendar year
 J = Quarter
 JUN = Proportion of second quarter OASDI covered private nonfarm wages (excluding tips and household) paid in June
 MAR = Proportion of first quarter OASDI covered private nonfarm wages (excluding tips and household) paid in March
 MWCP = OASDI covered private nonfarm wages paid in third month and in first two months of each quarter
 MWTP = OASDI taxable private nonfarm wages paid in third month and in first two months of each quarter
 PWCE = OASDI taxable private nonfarm wages paid in the third month of each quarter
 PWCS = OASDI taxable private nonfarm wages paid in the first two months of each quarter on which taxes are collected in that quarter
 QWSCPNT = Quarterly OASDI covered private nonfarm wages
 QRMREQ = Monthly deposit requirement
 QRWREQ = Quarterly deposit requirement
 QWSTXPHH = Quarterly OASDI taxable private nonfarm wages (excluding household)
 QWTPC = Quarterly OASDI taxable private nonfarm wages on which employers deposit taxes in the quarter the wages were paid
 QWTPF = Quarterly OASDI taxable private nonfarm wages on which employers deposit taxes in the quarter after the wages were paid
 RATEE(I,5) = OASDI employee tax rate
 RCSM = Proportion of OASDI taxable private nonfarm wages wages paid in same quarter in which taxes are collected
 RMF = Current year average wage size of firm
 SEP = Proportion of third quarter OASDI covered private nonfarm wages (excluding tips and household) paid in September

TRAT = OASDHI employee tax rate
WSP = Economy-wide (NIPA) private wages

```
SUBROUTINE ITERNU(A11,QPAR,QTOT,T,RMF,AMTOUT)
R=QPAR/QTOT
X=A11/(T*2+.10)
DO
IWH=X*(.16011+.01998*LOG(X/RMF)-.01)
FWH=T*2.*X*((-1.4402*LOG(1.+X/RMF)+1.)*(1.-R)+R)
A1=IWH+FWH
D=A1/A1
N1=D*1000.
IF(N1.EQ.999.OR.N1.EQ.1000)THEN
RTAX=R+(1.-R)*(-1.07115*X/RMF+.38633*(X/RMF)**2+1)
TOD=177.16+1142.7*DEXP(-(X/RMF))+1181.26*DEXP(-3.*(X/RMF))-907.88*DEXP(-4.*(X/RMF))+646.49*DEXP(-5.*(X/RMF))-
165.09*DEXP(-6.*(X/RMF))-20.92*X/RMF-2906.07/(X/RMF+1.))**2+831.44/(X/RMF+1.))**3
AMTOUT=QPAR-RTAX*TOD*QTOT
RETURN
END IF
X=X*D
END DO
END SUBROUTINE ITERNU
```

Where

A1 = Total (income plus FICA) taxes withheld
A11 = Deposit requirement
AMTOUT = OASDI taxable private nonfarm wages paid in sub-quarterly period and collected on in same quarter
D = Ratio of deposit requirement to total taxes withheld
FWH = FICA taxes withheld
IWH = Income taxes withheld
N1 = Ratio of deposit requirement to total taxes withheld times 1000 (used to see how close we are to target)
QPAR = OASDI taxable private nonfarm wages paid in sub-quarterly period
QTOT = OASDI covered private nonfarm wages paid in sub-quarterly period
R = Initial ratio of OASDI taxable to covered private nonfarm wages paid in sub-quarterly period
RMF = Current year average wage size of firm
RTAX = Ratio of OASDI taxable to covered private nonfarm wages paid in sub-quarterly period
T = OASDHI employee tax rate
TOD = Proportion of liabilities to be deposited in quarter after that in which wages paid
X = Taxable wage amount needed to meet deposit requirement

OASDI taxable private wages collected on in same quarter wages paid and in following quarter

QWTPCQ(I,J)=QWTPC(I,J)+QWTPHHCQ(I,J)+QWTFM(I,J)
QWTPFQ(I,J)=QWTPF(I,J)+QWTPHHFQ(I,J)

OASDI taxable State and Local wages collected on in same quarter wages paid and in following quarter

```
SLTR=WTSL/WCSL
LMPW(1)=MARSL(I)-.00329*(1.-SLTR**2)
LMPW(2)=JUNSL(I)-.68187*(1.-SLTR**3)+.52206*(1.-SLTR**4)
LMPW(3)=SEPSL(I)-1.33596*(1.-SLTR)+1.51187*(1.-SLTR**2)-.63523*(1.-SLTR**3)
LMPW(4)=DECSL(I)-2.03892*(1.-SLTR)+1.90430*(1.-SLTR**2)-.6633*(1.-SLTR**3)
DO J=1,4
SLCR(J)=(1.-LMPW(J))+LMPW(J)*LMCRPR(I-16,J)
QWTSCL(I,J)=SLCR(J)*QWTSI(I,J)
QWTSFL(I,J)=QWTSI(I,J)-QWTSCL(I,J)
END DO
```

Where

DECSL = Proportion of OASDI taxable State and Local wages paid in fourth quarter which are paid in December
I = Calendar year
J = Quarter
JUNSL = Proportion of OASDI taxable State and Local wages paid in second quarter which are paid in June
LMCRPR = Proportion of OASDI taxable State and Local wages paid in final month of quarter on which employers are to deposit taxes in the same quarter
LMPW = Proportion of quarterly OASDI taxable State and Local wages paid in final month of quarter
MARSL = Proportion of OASDI taxable State and Local wages paid in first quarter which are paid in March
QWTSI = Quarterly OASDI taxable State and Local wages paid in quarter
QWTSCL = Quarterly OASDI taxable State and Local wages paid in quarter on which taxes are deposited by the employer in the same quarter

QWTSLF	=	Quarterly OASDI taxable State and Local wages paid in quarter on which taxes are deposited by the employer in the following quarter
SEPSL	=	Proportion of OASDI taxable State and Local wages paid in third quarter which are paid in September
SLCR	=	Proportion of OASDI taxable State and Local wages paid in quarter on which taxes are deposited by the employer in the same quarter
SLTR	=	Ratio of OASDI taxable to covered State and Local wages
WCSL	=	Annual OASDI covered State and Local wages
WTSL	=	Annual OASDI taxable State and Local wages

OASDI taxable wages collected on in same quarter wages paid and in following quarter

$WTQCQ(I,J) = QWTPCQ(I,J) + QWTSCL(I,J) + QWTF(I,J)$
 $WTQFQ(I,J) = QWTFQ(I,J) + QWTSLF(I,J)$

Where

I	=	Calendar year
J	=	Quarter
QWTF	=	Quarterly OASDI taxable Federal wages
QWTPCQ	=	Quarterly OASDI taxable private wages collected on in same quarter wages paid
QWTFQ	=	Quarterly OASDI taxable private wages collected on quarter following that in which wages paid
QWTSCLQ	=	Quarterly OASDI taxable State and Local wages collected on in same quarter wages paid
QWTSLFQ	=	Quarterly OASDI taxable State and Local wages collected on in quarter following that in which wages paid
WTQCQ	=	Quarterly OASDI taxable wages collected on in same quarter wages paid
WTQFQ	=	Quarterly OASDI taxable wages collected on in quarter following that in which wages paid

Quarterly OASDI wage tax collections

$WTLQC(I,1) = TRW(I-1) * WTQFQ(I-1,4) + TRW(I) * WTQCQ(I,J)$
 DO J = 2, 4
 $WTLQC(I,J) = TRW(I) * (WTQFQ(I,J-1) + WTQCQ(I,J))$
 END DO

Where

I	=	Calendar year
J	=	Quarter
TRW	=	OASDI combined employee-employer tax rate
WTLQC	=	Quarterly OASDI wage tax collections
WTQCQ	=	Quarterly OASDI taxable wages collected on in same quarter wages paid
WTQFQ	=	Quarterly OASDI taxable wages collected on in quarter following that in which wages paid

2.5.6 Quarterly Self-Employed Net Income Tax Collections (SELQC)

DO J = 1, 4
 $SELQC(I,J) = SECRPY(I,J) * SEL(I) + SECRPY(I,J) * SEL(I-1)$
 END DO

Where

I	=	Calendar year
J	=	Quarter
SECRPY	=	Proportion of OASDI taxable self-employment income collected on in same year earned
SECRPY	=	Proportion of OASDI taxable self-employment income collected on in year following that in which earned
SEL	=	OASDI taxable self-employment income liabilities
SELQC	=	Quarterly OASDI self-employed net income tax collections