

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)

$$MERL = MER * TRWE$$

Where

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

2.5.4 OASDI quarterly taxable wage liability (WTLQ)

Federal Civilian

Annual total wages (OASDI + MQGE)

$$BAFCW = 34198.84$$

$$AWCFC = WCFC / ECFC * BAFCW / AWCFTOT97$$

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

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IF(T.LT.0.014620379)THEN
  FCTR=(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)*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=(.162181/1.7)*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=-(.134084/3.5)*T**3.5+(.109868/5D0)*T**5-(.404253/5.8)*T**5.8+1.17397*T-.222555715
ELSE IF(T.LT.2.339260627)THEN
  FCTR=(-.671304/.5)*DEXP(-.5*T)-(3.27076/1.4)*DEXP(-1.4*T)+.126626*T+.353367869
ELSE IF(T.LT.3.50889094)THEN
  FCTR=(-.0571643/.95)*DEXP(-.95*T)-(3.17633/1.8)*DEXP(-1.8*T)+.000623031*T+.996284293
ELSE IF(T.LT.4.970928832)THEN
  FCTR=(-(12.3148/2.25)*DEXP(-2.25*T)+.0000698013*T+.999222265
ELSE
  FCTR=(-(.0285502/2D0)*T*(-2D0)+1.00007094
END IF
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$$WTFCTOT=FCTR*WCFC$$

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

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BAFCW = 50147.72
AWCFC = WCFC / ECFC * BAFCW / AWCFCCHO97
T = MAX / AWCFC

IF(T.LT.0.019941085)THEN
  FCTR=(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=(.60901/2.1)*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
AWCFCCHO97	=	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)-4.73021*(1.-FCTR)**2+25.3606*(1.-FCTR)**3-58.1741*(1.-FCTR)**4+45.1465*(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

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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)

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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

IF(T.LT.0.060827432)THEN
  MTR=-(.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

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

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

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)-.622266+.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)

$QWTML(I,3) = QWCML(I,3)$
 $QWTML(I,4) = WTM - QWTML(I,1) - QWTML(I,2) - QWTML(I,3)$
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

$WCF = WCFC + WCML$
 $QWCF = QCFC + QCML$
 $WTF = WTFC + WTM$
 $QWTF = QWTF + QWTML$
 $WTLQFEE(I,J) = QWTF(I,J) * TRWEE(I)$
 $WTLQFER(I,J) = QWTF(I,J) * TRWER(I)$
 $WTLQF(I,J) = WTLQFEE(I,J) + WTLQFER(I,J)$

Where

I	=	Calendar year
J	=	Quarter
QCFC	=	Quarterly OASDI covered Federal wages
QCFC C	=	Quarterly OASDI covered Federal Civilian wages
QCML	=	Quarterly OASDI covered military wages
QWTF	=	Quarterly OASDI taxable Federal wages
QWTF	=	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
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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QL(1)=(CSLQD(1)-.24087*(1.-1./SLTR))
QL(2)=(CSLQD(2)-1.0492*(1.-1./SLTR)+.51259*(1.-1./SLTR**2)-.07643*(1.-1./SLTR**3))
QL(3)=(CSLQD(3)-5.99032*(1.-SLTR**2)+13.238*(1.-SLTR**3)-11.3291*(1.-SLTR**4)+3.52237*(1.-SLTR**5))
QL(4)=(CSLQD(4)+8.99897*(1.-SLTR**.25)-5.48866*(1.-SLTR**.5))
TQL=QL(2)+QL(3)+QL(4)
QL(2:4)= QSL(2:4)/TQL
QWTS(1,1)=QL(1)*WTS(1)
QWTS(1,2:4)=QL(2:4)*(WTS(1)-QWTS(1,1))

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Where

CSLQD	=	Proportion of annual OASDI covered State and Local wages paid in each quarter
I	=	Calendar year
QL	=	Proportion of annual OASDI taxable State and Local wages paid in each quarter
QWTS(1)	=	Quarterly OASDI taxable State and Local wages
SLTR	=	Ratio of OASDI taxable to covered State and Local wages
WTS(1)	=	OASDI taxable State and Local wages

Quarterly OASDI taxable wage liabilities

WTLQSL(I,J) = QWTS(1,J) * TRW(I)

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
 AWC FM97 = ACFMW(1997)
 F = MAX / (ACFMW * BAFMW / AWC FM97)

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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)-(322774/1.5)*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
 AWC FM97 = 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

$$\begin{aligned} QWTTIPSEE(I,J) &= QDTIP(J) * WTTIPSEE(I) \\ QWTTIPSEE(I,2) &= QWTTIPSEE(I,2) + WTTIPSSR(I) \\ WTLQTIPSEE(I,J) &= QWTTIPSEE(I,J) * TRW(I) \end{aligned}$$

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
WTLQTIPSEE	=	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

$$WTPNF = WTER - WTFC - WML - WTS - TFMW - WTTIPSEE - WTTIPSSR$$

Where

TFMW	=	Annual OASDI taxable farm wages
WTS	=	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)=(-.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)=(-.006571+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)
ENDIF
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

$$\begin{aligned} QWT(I,J) &= QWTPNF(I,J) + QWTF(I,J) + QWTS(I,J) + QWTFM(I,J) \\ WTLQ(I,J) &= QWT(I,J) * TRW(I) \end{aligned}$$

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
QWTS	=	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

AWSCODXSRT	=	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)	=	OASDHI 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=A11/A1
  N1=D*1000.
  IF(N1.EQ.999.0R.N1.EQ.1000)THEN
    RTAX=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)+QWTPHHQC(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)
  QWTSCLC(I,J)=SLCR(J)*QWTSL(I,J)
  QWTSLF(I,J)=QWTSL(I,J)-QWTSCLC(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
QWTSL	=	Quarterly OASDI taxable State and Local wages paid in quarter
QWTSCLC	=	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) + QWTSLF(I,J) + QWTF(I,J)
 WTQFQ(I,J) = QWTPFQ(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
QWTPFQ	=	Quarterly OASDI taxable private wages collected on quarter following that in which wages paid
QWTSLCQ	=	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) = SECRCY(I,J) * SEL(I) + SECRPY(I,J) * SEL(I-1)
 END DO

Where

I	=	Calendar year
J	=	Quarter
SECRCY	=	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