

## **2.4. Effective TAXABLE PAYROLL (TAXPAY)**

### **2.4.a. Overview**

TAXPAY estimates annual OASDI taxable earnings values including total employee taxable wages (WTEE), total employer taxable wages (WTER), and taxable self-employment income (SET). By law, each individual is required to pay the employee share of OASDI tax on wages from all covered jobs and the self-employment tax from self-employment income up to the TAXMAX. Each employer is required to withhold the employee share of the OASDI tax on the wages of each worker up to the TAXMAX, as well as paying the identical employer share. If an employee works more than one covered wage job and the sum of all covered wages exceeds the TAXMAX, the employee is due a refund. The employers involved are not due the refund. Hence, WTER is greater than WTEE. The difference (i.e., WTER less WTEE) is defined as multi-employer refund wages (MER). Individuals with covered wage employment who are also self-employed only owe taxes on their self-employment income to the extent that it does not exceed the TAXMAX after being added to the individual's covered wages.

TAXPAY estimates the annual OASDI effective taxable payroll (ETP) using the components discussed above. ETP is the amount of earnings in a year which, when multiplied by the combined employee-employer tax rate, yields the total amount of taxes due from wages and self-employment income in the year. ETP is used in estimating OASDI income and in determining income and cost rates and the actuarial balance. ETP is defined as WTER plus SET less one-half of MER.

The components of ETP are estimated by a collection of ratios. The employee taxable ratio (RWTEE) is defined as the ratio of WTEE to WSC. The multi-employer refund wage ratio (RMER) is defined as the ratio of MER to WSC. The self-employment income taxable ratio (RSET) is defined as the ratio of SET to CSE\_TOT. Equations 2.4.1 through 2.4.8 outline the projection methodology.

$$\text{RWTEE} = \text{RWTEE}(\cdot) \quad (2.4.1)$$

$$\text{WTEE} = \text{RWTEE} * \text{WSC} \quad (2.4.2)$$

$$\text{RMER} = \text{RMER}(\cdot) \quad (2.4.3)$$

$$\text{MER} = \text{RMER} * \text{WSC} \quad (2.4.4)$$

$$\text{WTER} = \text{WTEE} + \text{MER} \quad (2.4.5)$$

$$\text{RSET} = \text{RSET}(\cdot) \quad (2.4.6)$$

$$\text{SET} = \text{RSET} * \text{CSE\_TOT} \quad (2.4.7)$$

$$\text{ETP} = \text{WTER} + \text{SET} - 0.5 * \text{MER} \quad (2.4.8)$$

In order to conform to the Trustees' assumption that the ratio of ETP to the sum of WSC and CSE\_TOT is equal to the assumed ultimate value for the OASDI taxable ratio in the final short-range year (see below), TAXPAY solves equations 2.4.1 through 2.4.8 iteratively, altering the trend adjustment on RWTEE until the assumed ratio is reached.

#### **2.4.b. Input Data**

##### *Trustees Assumptions*

1. The Board of Trustees of the OASDI Trust Funds assumes that the ratio of effective OASDI taxable payroll to covered earnings for the final calendar year of the short-range period (i.e., the 10th full calendar year of the projection) is 0.825.

##### *Data used to obtain values input directly to model*

2. Data estimated by OCACT's Economics team for the amounts of single and multi-employer excess wages subject to refunds of taxes for the latest 5 years. Each year, data are updated.
3. Data obtained from the most recently available 1% CWHS active file, maintained on Social Security's mainframe and made available by ORES. The years of data are 1951 to the third year prior to the current Trustees Report year. The data are used in estimating OASDI taxable wages for 1951 through 1977.
4. Data for taxable wages and self-employment income for 1978 on and total OASDI taxable earnings for 1951 on from the quarterly EPOXY Report, provided by SSA's OCIO. The data currently used in subprocess 2.4 are the amounts of OASDI taxable earnings, wages, and self-employment income; amounts of multi-employer excess wages; and HI-covered wage workers.
5. Data obtained from the Quarterly Trust Fund Letter (QTFL), received from OFPO. Data currently used are OASDI and HI taxable wages accumulated from all Forms 941 and W-2 to date, and changes in self-employment income and self-reported tips and wages since the prior QTFL. The wage data are for years 1978 to the most recent year available and the self-employment income data for years 1951 to the most recent year available.
6. Data obtained from quarterly IRS Form 941 files, provided by OCIO. Data used are quarterly and annual OASDI taxable tips and annual farm wages.
7. Program values from OCACT web pages available on internet (national average wage index; OASI, DI, and HI tax rates; OASDI and HI taxable maximums).
8. Historical deemed military wage credits from quarterly EPOXY report produced on 01/08/2005.

9. Wages for railroad employees for 1937 through the third year prior to the Trustees Report year from the Railroad Retirement Board.
10. OASDI covered wages and employment and covered self-employment income (SE) for workers with taxable SE for 1937-70 from the 1993 Annual Statistical Supplement (estimates not updated subsequently).
11. Historical estimates of OASDI-covered self-employment income for 1951-1990 developed by the Economics team.
12. Data obtained from extracting information from the 1% Employee-Employer Files, maintained on Social Security's mainframe and made available by ORES. Each year two files are created: a Version 1 file for the third year prior to the current Trustees Report and a Version 3 file for the fifth year prior to the current Trustees Report. Data currently being used are government and farm sector OASDI, HI, and total wages and employment. Data from the latest files are used to estimate OASDI taxable wages for the years available on each file.
13. Historical estimated data from unknown sources as stored by former employees.
14. Amalgam (i.e., adjusted average) wage distribution, developed by the Economics team from EPOXY wage distribution data for years 2000 through the third year prior to the Trustees Report.
15. Distribution of SE income, developed by the Economics team from 1% CWHS sample data from the MEF, for the most recent year for which sufficiently complete data are available. Because of issues with the SE income sample data not being consistent with 100% totals, this distribution is not necessarily updated every year.

#### *Long-Range OASDI Projection Data*

Historical and projected data from Section 2.3 are used as inputs.

#### **2.4.c. Development of Output**

##### *Equation 2.4.1 - Employee Taxable Ratio (RWTEE)*

Over the short-range projection horizon, the projected value for RWTEE is the sum of the model's "raw" estimate and an addfactor consisting of four components. The raw estimate for RWTEE is dependent on the distribution of workers by wage interval, the RELMAX, RTP, the age-sex distribution of wage workers, a time trend adjustment, and a base-year error adjustment. The projected distribution of workers by wage interval is based on the amalgam distribution (described in #14 above) for the years 2000 through the third year prior to the Trustees Report year. Holding other factors constant, a distribution with relatively more workers with wages over the TAXMAX leads to a lower RWTEE. The RELMAX is defined as the ratio of the TAXMAX to the ACW. A higher RELMAX leads to a higher RWTEE.

An increase in the RTP leads to a lower RWTEE. The change in the projected RWTEE due to the change in the age-sex distribution of wage workers is calculated by allowing employment by age and sex to change while holding taxable ratios (and average covered wages) by age and sex constant to levels in 1996. The time trend adjustment reduces the level of RWTEE by about 0.6 percentage point over the short-range projection horizon. The base-year error adjustment starts with the value obtained by subtracting the estimated value of RWTEE for the latest historical (or base) year from the actual value and phases this amount out linearly over the ten years of the short-range projection period.

*Equation 2.4.2 - Employee Taxable Wages (WTEE)*

WTEE is computed by multiplying the ratio of taxable employee wages to covered wages by the level of covered wages.

*Equation 2.4.3 - Multi-Employer Refund Wage Ratio (RMER)*

The RMER is functionally related to the RWTEE. As RWTEE approaches one, RMER approaches zero. In between the limit values, RMER is positive. Given the present position of RWTEE and RMER on the function, a projected decline in RWTEE leads to an increase in RMER.

The projected RMER is also dependent on RU. An increase in RU leads to a decrease in RMER.

RMER is assumed to remain constant in years after the short-range projection period.

*Equation 2.4.4 - Multi-Employer Refund Wages (MER)*

MER is computed by multiplying the ratio of multi-employer refund wages to covered wages by the level of covered wages.

*Equation 2.4.5 - Employer Taxable Wages (WTER)*

WTER is computed by adding employer taxable wages to multi-employer refund wages.

*Equation 2.4.6 - Self-Employed Net Income Taxable Ratio (RSET)*

The RSET is disaggregated by type of self-employed worker, SEO and CMB\_TOT.

SEO - The RSET is dependent on the distribution of self-employed workers by income interval and a RELMAX. The projected distribution of self-employed workers by income interval is set to the 2017 distribution. The RELMAX is defined here as the ratio of the TAXMAX to the average income for SEO. A higher RELMAX leads to a higher RSET.

CMB\_TOT - Taxable self-employed net income for CMB\_TOT is projected in two steps.

First, a taxable earnings (wages and self-employment income) ratio for CMB\_TOT is projected based on the 2017 distribution and a RELMAX defined as the ratio of the TAXMAX to the average covered earnings. The projected level of taxable earnings for CMB\_TOT is the product of the estimated taxable earnings ratio for CMB\_TOT and their covered earnings. Second, a taxable wage ratio for CMB\_TOT is projected based on a RELMAX defined as the ratio of the TAXMAX to the average covered wage for CMB\_TOT. The projected level of taxable wages for CMB\_TOT is the product of the estimated taxable wage ratio for CMB\_TOT and their covered wages.

Taxable self-employed net income for CMB\_TOT is obtained by subtracting taxable wages from taxable earnings for CMB\_TOT.

A “combined” RSET is calculated as the ratio of the sum of taxable self-employment income for SEO and CMB\_TOT to CSE\_TOT. As with the RWTEE, the combined RSET is adjusted over the short-range period due to other factors (i.e., RTP, the age-sex distribution of workers, and a trend). The effect of the other factors are taken from RWTEE and “scaled.” That is, RSET is adjusted by a percent effect (as opposed to percentage point) that is equal to the percent change in RWTEE due to changes in these other factors.

It is important to note that while the RWTEE is held constant after the short-range period, the RSETs for self-employed workers are not. After the short-range period, the projected RSETs for SEO and CMB\_TOT continue to be dependent on their respective RELMAXs. Since by law the TAXMAX grows at the rate of the AWI and since ACSE is assumed to grow faster than the ACW (since only ACW declines with the growth in fringe benefits), the RELMAXs for self-employed workers decline over the long-range period while the RELMAX for wage workers is approximately constant. Hence, the RSETs for SEO and CMB\_TOT are projected to decline over the long-range period while the RWTEE is held constant.

#### *Equation 2.4.7 - Taxable Self-Employment Income (SET)*

SET is computed by multiplying the self-employment income taxable ratio by the level of covered self-employment income.

#### *Equation 2.4.8 – Effective Taxable Payroll (ETP)*

ETP is computed by adding employer taxable wages and taxable self-employment income and subtracting from that total one-half of multi-employer refund wages. (Only employees can obtain refunds of excess taxes withheld in multi-employer refund wage cases.)

As noted above, in order to meet the Trustees’ assumption that the ratio of ETP to total covered earnings reaches the assumed ultimate value for the OASDI taxable ratio in the last year of the short-range period, equations 2.4.1 through 2.4.8 are solved repeatedly with changes to the time-trend adjustment in equation 2.4.1 until the ratio is obtained.