

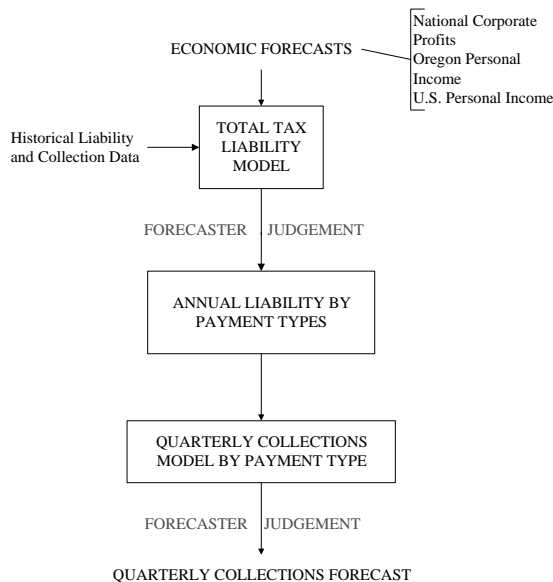
Corporate Income Tax Forecast Methodology

The corporate income tax forecast is produced by:

1. Forecasting total annual corporate tax liability.
2. Forecasting annual liability by payment type - advance payments, final payments³ and refunds.
3. Convert the annual tax liability forecast by payment types into a quarterly collections forecast.

Figure 6 outlines the different models and variables used to produce the corporate income tax forecast.

Figure 6
CORPORATE INCOME TAX MODELS



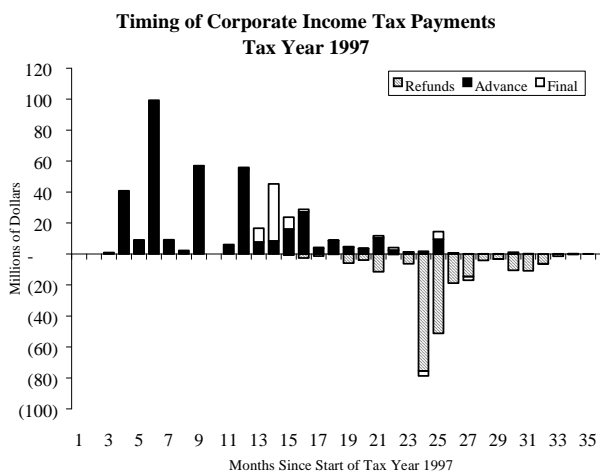
Corporate Liability Model

The corporate income tax model is similar in nature to the personal models. However, the transition from collections to liability is far more complex. A specific corporate tax year may start any time during the same calendar year. Many corporations use calendar year or fiscal year as their tax year, but not all. As a result, collections and refunds for a given tax year are spread over several years (See Figure 7).

The differing tax years also means that payments are received on multiple tax years simultaneously. For example, an average of 72 percent of advanced payments received during a calendar year belongs to that tax year. The remaining 28 percent belong to the prior tax year.

The top half of Figure 8 shows how collections data are processed to develop monthly liability data by payment type. In essence,

Figure 7



³ Delinquent payments are defined as advance payments associated with tax years that are at least two years prior to the current tax year and final payments for tax years that are at least three years prior to the current tax year.

collections are split by tax year and then shifted back in time to create a liability data set. This produces a monthly liability variable for each payment type. The monthly data are then converted to annual data prior to forecasting each payment type.

The main driver behind the total liability model is corporate profits. An Oregon specific forecast is not available. Instead, the ratio of Oregon personal income to U.S. personal income is used to derive Oregon's share of national corporate profits. This process picks up overall growth in corporate profits as well as Oregon's increasing share of profits.

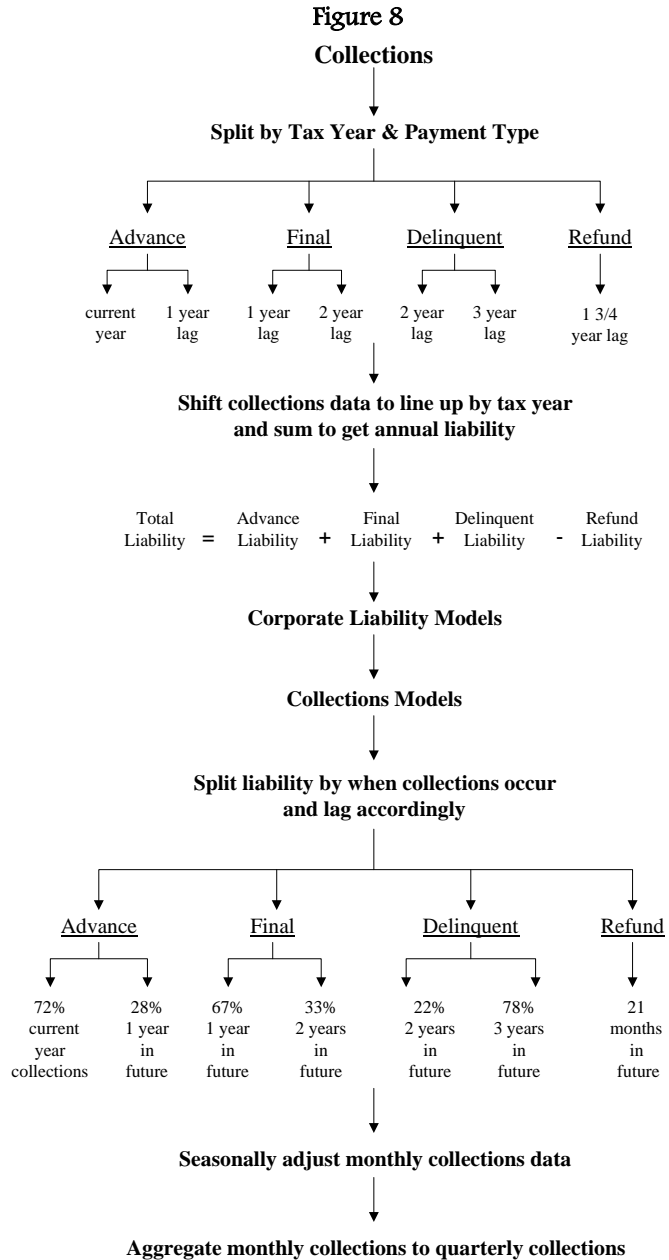
The total liability model also includes variables for recent corporate kicker refunds and past tax policy actions.

The total liability forecast is the main predictor of advance payments and refunds. Delinquent payments tend to grow along with overall corporate profits. Final payments are calculated as total liability less advance and delinquent payments plus refunds. The individual equations are contained in Appendix B.

Collections Model

The spreading equations take the annual liability forecasts by payment type and convert them into monthly collections forecasts. The bottom half of Figure 8 outlines this process. The steps involved in this process are laid out below:

1. Annual forecasted liability by payment type is spread equally over the months of the year.
2. The liability series for all payment types except refunds is split into two pieces based on when collections for a given tax year's liability occur. (The reverse of the process used to convert collections to liability).



This produces seven data series (see Figure 8).

3. The forecasts are then shifted forward in time to account for the time between when the liability is incurred and collections occur.
4. Historical seasonally patterns are applied to the forecasts using X-12 determined seasonal factors.
5. Monthly forecasts are summed to get quarterly collections forecasts.

Beginning in 2011, the corporate income tax forecast is being transitioned away from the lagged liability data into a collections-based model. The new collections model takes advantage of the very timely monthly revenue data, and exploits the richness of the Oregon economic model by looking at collections across detailed industry groups. At the industry level, the model can better capture the character of growth in the local economy, and can better reflect the 1995 shift to a single-sales factor for corporate tax liability. The traditional liability model will continue to be maintained, with the detailed liability forecasts of use by the Legislative Revenue Office and other interested parties when analyzing the economic impact of alternative public policies.

Forecaster Judgment

The raw collections forecasts must be adjusted to account for tax law changes that are not included in the liability models. This includes recent legislation and policy actions such as adding more tax auditors at the Department of Revenue. Kicker credits that have yet to be taken are also reflected in this manner.

In addition, quarterly earnings reports and other idiosyncratic pieces of information about large corporate tax paying entities are taken into account in the near-term forecast. Due to privacy concerns, such adjustments cannot be made formally in the model.

Appendix: CIT Equation Specifications and Variable Listing

Dependent Variable: LOG(CORP_ADVLIB)
 Method: Least Squares
 Date: 11/17/10 Time: 07:28
 Sample (adjusted): 1986 2008
 Included observations: 23 after adjustments
 Convergence achieved after 17 iterations

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.10	0.80	0.12	0.90
DMY_NORMAL*LOG(ZB)	0.84	0.12	7.01	0.00
DMY_HITECH*LOG(ZB)	0.89	0.12	7.34	0.00
DMY_REC91	-0.31	0.13	-2.46	0.03
DMY_SALESFACT3	0.00	0.13	-0.02	0.98
AR(1)	0.51	0.19	2.64	0.02
R-squared	0.96	Mean dependent var		5.75
Adjusted R-squared	0.94	S.D. dependent var		0.52
S.E. of regression	0.12	Akaike info criterion		-1.15
Sum squared resid	0.25	Schwarz criterion		-0.86
Log likelihood	19.24	F-statistic		75.64
Durbin-Watson stat	2.18	Prob(F-statistic)		0.00

Dependent Variable: LOG(CORP_DELLIB)
 Method: Least Squares
 Date: 11/17/10 Time: 07:25
 Sample (adjusted): 1986 2006
 Included observations: 21 after adjustments
 Convergence achieved after 11 iterations

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.44	0.81	0.55	0.59
DMY_DATA90	0.37	0.17	2.17	0.05
LOG(ZB)	0.41	0.14	2.92	0.01
CORPKICKER	0.00	0.00	-1.51	0.15
AR(1)	-0.24	0.31	-0.77	0.45
R-squared	0.68	Mean dependent var		3.36
Adjusted R-squared	0.59	S.D. dependent var		0.40
S.E. of regression	0.25	Akaike info criterion		0.30
Sum squared resid	1.03	Schwarz criterion		0.55
Log likelihood	1.88	F-statistic		8.31
Durbin-Watson stat	1.97	Prob(F-statistic)		0.00

Dependent Variable: LOG(CORP_RFNDLIB)
 Method: Least Squares
 Date: 11/17/10 Time: 07:25
 Sample (adjusted): 1986 2008
 Included observations: 23 after adjustments
 Convergence achieved after 15 iterations

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.18	3.52	-0.34	0.74
LOG(ZB)	0.91	0.52	1.75	0.10
CORPKICKER	0.00	0.00	1.85	0.08
AR(1)	0.73	0.17	4.36	0.00
R-squared	0.85	Mean dependent var		4.72
Adjusted R-squared	0.83	S.D. dependent var		0.89
S.E. of regression	0.37	Akaike info criterion		1.00
Sum squared resid	2.59	Schwarz criterion		1.20
Log likelihood	-7.52	F-statistic		36.44
Durbin-Watson stat	2.21	Prob(F-statistic)		0.00

Dependent Variable: LOG(CORP_TOTLIB)
 Method: Least Squares
 Date: 11/17/10 Time: 07:25
 Sample (adjusted): 1986 2006
 Included observations: 21 after adjustments
 Convergence achieved after 10 iterations

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-2.67	2.20	-1.22	0.24
DMY_REC91	-0.28	0.10	-2.80	0.01
DMY_NORMAL*LOG(ZB)	1.21	0.28	4.31	0.00
DMY_HITECH*LOG(ZB)	1.25	0.28	4.39	0.00
CORPKICKER	0.00	0.00	-11.07	0.00
AR(1)	0.85	0.12	7.07	0.00
R-squared	0.95	Mean dependent var		5.49
Adjusted R-squared	0.93	S.D. dependent var		0.41
S.E. of regression	0.11	Akaike info criterion		-1.37
Sum squared resid	0.18	Schwarz criterion		-1.07
Log likelihood	20.34	F-statistic		53.38
Durbin-Watson stat	1.69	Prob(F-statistic)		0.00

Variable Listing

CORP_ADVLIB	Advanced CIT payments associated with liability in current year
DMY_NORMAL	Data definitional change control
DMY_HITECH	Tech boom control
ZB	Corporate profits
DMY_REC91	Control for 1991 Recession
DMY_SALESFACT3	Control for move to single sales factor
CORP_DELLIB	Delinquent CIT payments associated with liability in current year
DMY_DATA90	Data definitional change control
CORPKICKER	Corporate kicker refunds issued
CORP_RFNDLIB	CIT refunds associated with liability in current year
CORP_TOTLIB	Total CIT payments associated with liability in current year