
Federal and Iowa Individual Income Tax Micro Model

IOWA  Department of **REVENUE**

Tax Research and Program Analysis Section

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Outline

- History and purpose of IDR Individual Income Tax Micro Model
- What the model does
- Micro data and forecasting
- Federal and State policy parameters
- Model flow chart
- Standard model output

History and Purpose of the IDR

Individual Income Tax Micro Model

- Tool for estimating the fiscal impacts of proposed policy changes to *Federal* and *Iowa* individual income tax law
 - ❑ State tax model on mainframe – 2 hour run time
 - ❑ Transitioned to SAS (2003) – run time cut
 - ❑ Moved to SAS-Enterprise Guide (2006) – parameter sheets eased analysis of standard policy changes
 - ❑ Added federal model (2009) – better capture linkage between federal and Iowa tax liabilities
 - Run time about 4 minutes per tax year

What the Model Does

- Using micro data on components of income, adjustments, deductions, and tax credits
 - Follows the US 1040 and IA 1040 to compute individual taxpayer AGI, taxable income, and tax liability twice for both federal and Iowa
 1. Under current law parameters
 2. Under user-specified alternative policy parameters
- Calculates the change in tax liability under the alternative policy
 - Policy change can be federal (w/ limits) or Iowa

Micro Data

- Model base file starts with taxpayer information from the Iowa Master File matched to federal tapes
 - Includes both resident (1.34 million) and nonresident (0.15 million) taxpayers
 - Composite returns (1,432)
 - Electronic-filed return data used when available to enhance keyed data
 - Hot deck used for missing federal data (3.1%)

Forecasting beyond 2008

- Relevant forecast tax years 2012-2030
- How do we get there from 2008?
 - Adjust components of income, adjustments, and deductions by forecasted economic growth
 - Weight individual taxpayers according to age-population projections
 - Include enacted tax law changes through parameters or code

Mechanics of Growth

- Income forecasts for future tax years derived through growth factor estimates on each component of income for resident taxpayers
 - $\text{Wages} = f(\text{employment, hours})$
 - $\text{Wage growth factor} = \frac{\text{Forecasted wages in target year}}{\text{Reported wages in data year}}$
- Each individual taxpayer's wage effectively increased by the relevant growth factor for the target year
 - No differential treatment of growth by income group
 - Possible improvement for 2012

Population Aging

- Aging an issue as first baby boomers reached 65 in 2011
- Age-weights applied to all taxpayers
 - SFS=3, primary and secondary treated separately
 - $(\text{Population}_{at} / \text{Population}_{a2008})$
- No other demographic changes modeled
 - 65 year-old is the same, just higher weight
 - Unemployment claims are assigned for current recession

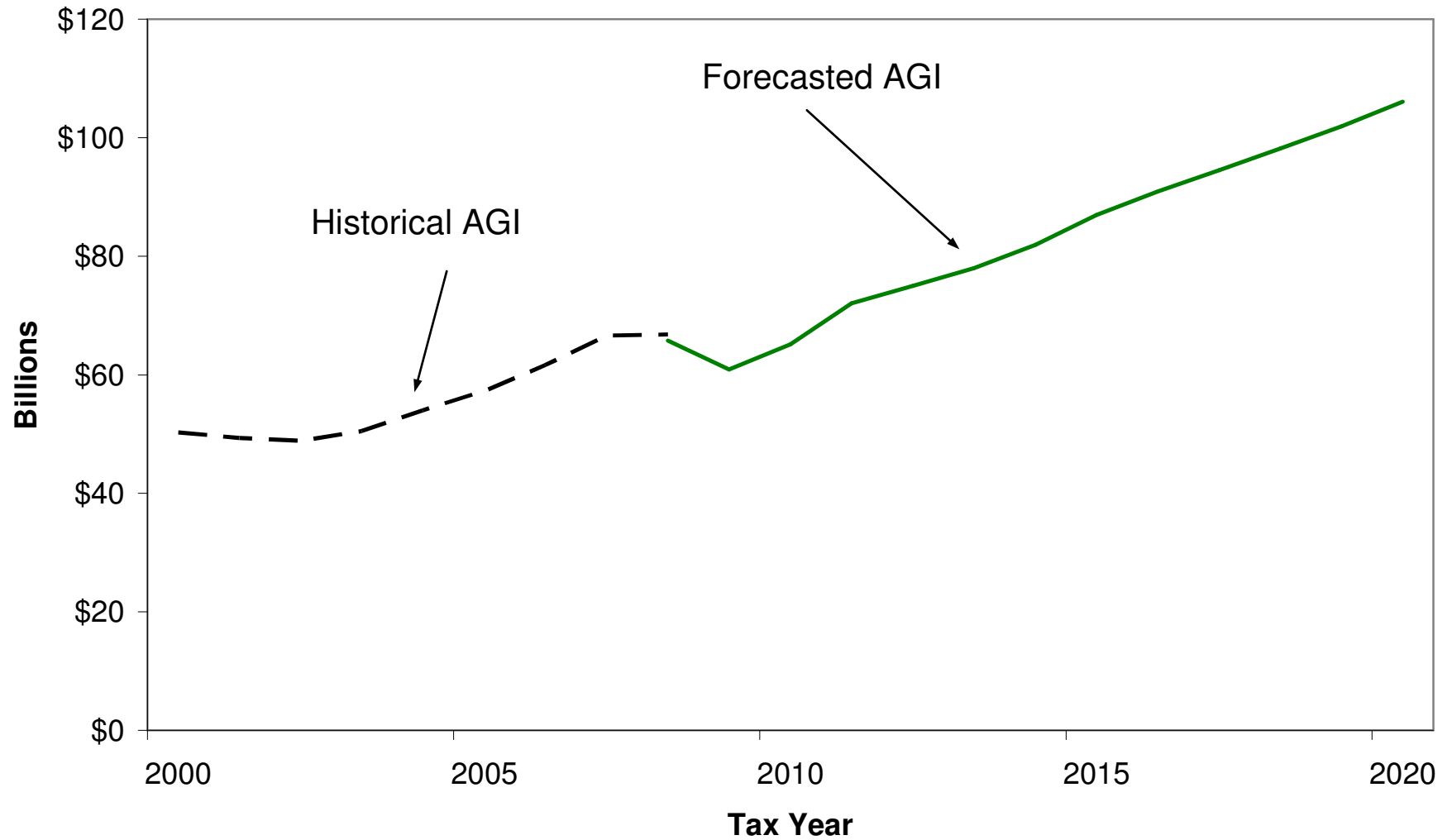
Census Iowa Population Projections

(000's)	2005	2010	2015	2020
0-22	925	913	898	883
23-34	465	473	454	423
35-44	407	374	386	401
45-54	434	433	394	360
55-64	307	367	399	396
65-74	203	217	259	308
75+	233	233	236	249
Total	2,974	3,010	3,026	3,020

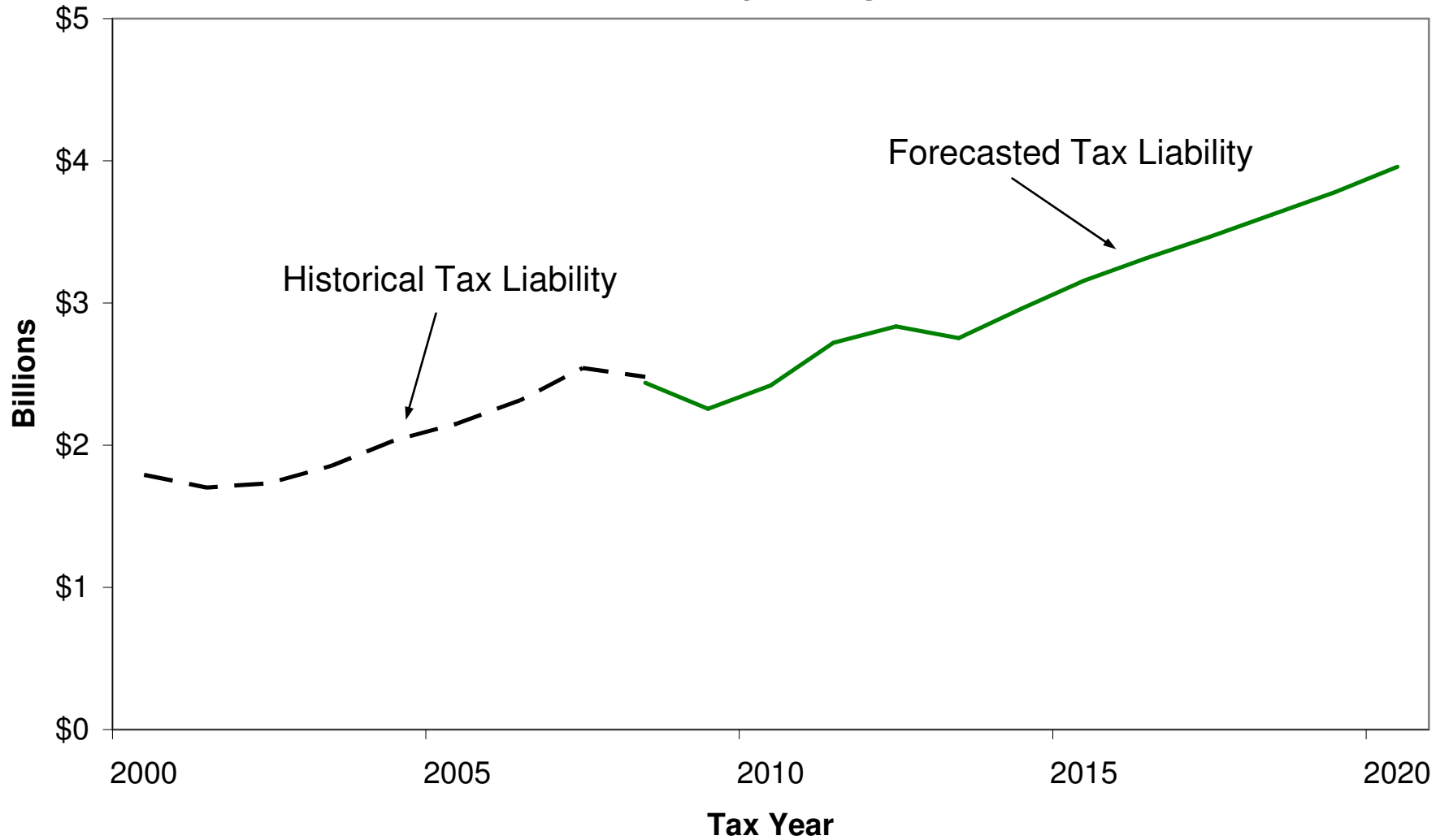
Net Growth Factor Example

- First compute impact of aging on income
 - 7.2% aging growth in taxable pensions by 2012
- Second adjust forecasted aggregate income growth to net out aging
 - 35.0% total growth in taxable pensions by 2012
 - Pensions=f(Iowa population 55+, S&P 500)
 - $(1.350/1.072)=1.25$: 25% net growth
- Use net growth factors to adjust income, and project AGI and tax liability
- Age-weight results for final numbers

Resident Historical AGI and Forecasted AGI Using 2008 Base Data



Resident Historical Iowa Tax Liability and Forecasted Iowa Tax Liability Using 2008 Base Data



Federal Policy Parameters

- Current law parameters
 - Federal tax rate schedule brackets and rates
 - Federal personal exemptions and phase-outs
 - Standard deductions by filing status, aged and blind additional deductions
 - Social Security taxation income threshold amounts
 - Capital gains tax rates
 - Itemized deduction limits and phase-outs
 - AMT parameters
 - Federal child care tax credit schedule brackets and rates
 - Child tax credit amount and income limits
 - Federal earned income tax credit rates, phase-ins and phase-outs

Iowa Policy Parameters

- Current law parameters
 - Tax rate schedule brackets and rates
 - Personal, aged/blind, and dependent credits
 - Alternate tax threshold and rate
 - Minimum income filing thresholds
 - Standard deductions by filing status
 - Percent of federal tax payments that are deductible and percent of federal refunds that are taxable
 - Pension exclusion amounts and percent allowed
 - Phase-out percentages for Social Security income
 - Tuition and textbook credit parameters
 - Earned income tax credit share of federal
 - Child and dependent care/early childhood tax credits brackets and rates
 - Iowa minimum tax parameters

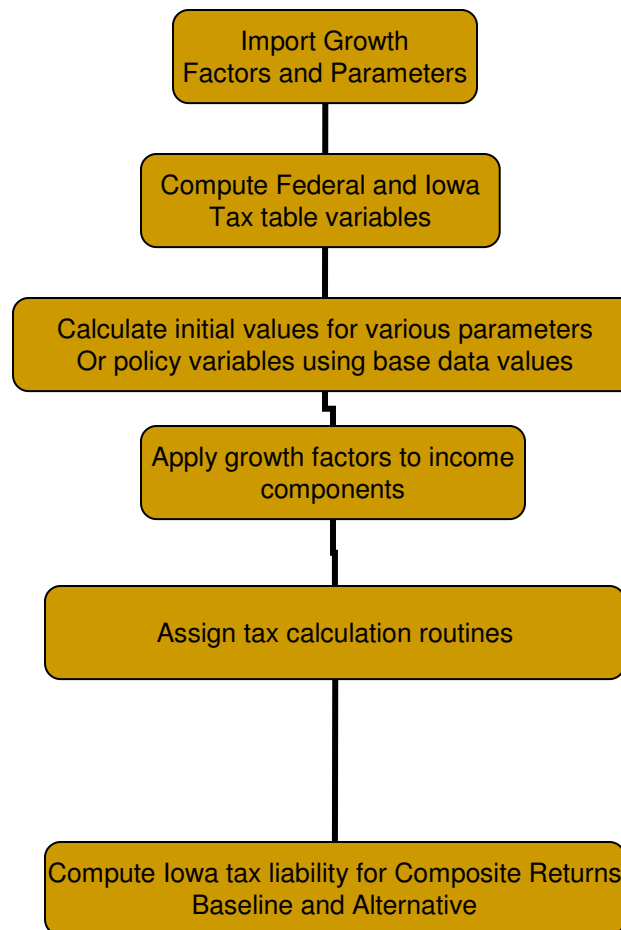
Iowa Policy Parameters (cont)

- Alternative tax policy parameters
 - Iowa personal, aged/blind and dependent exemptions (similar to federal)
 - Income thresholds and rates for phasing-out such exemptions by state filing status
 - Limitation on itemized deductions
 - Means test for personal credits
 - Exclusion percentage for taxation of pension/IRA income
 - Parameters to limit the Iowa capital gains deduction
 - Exclusion percentage for all capital gains income above the Iowa exclusion

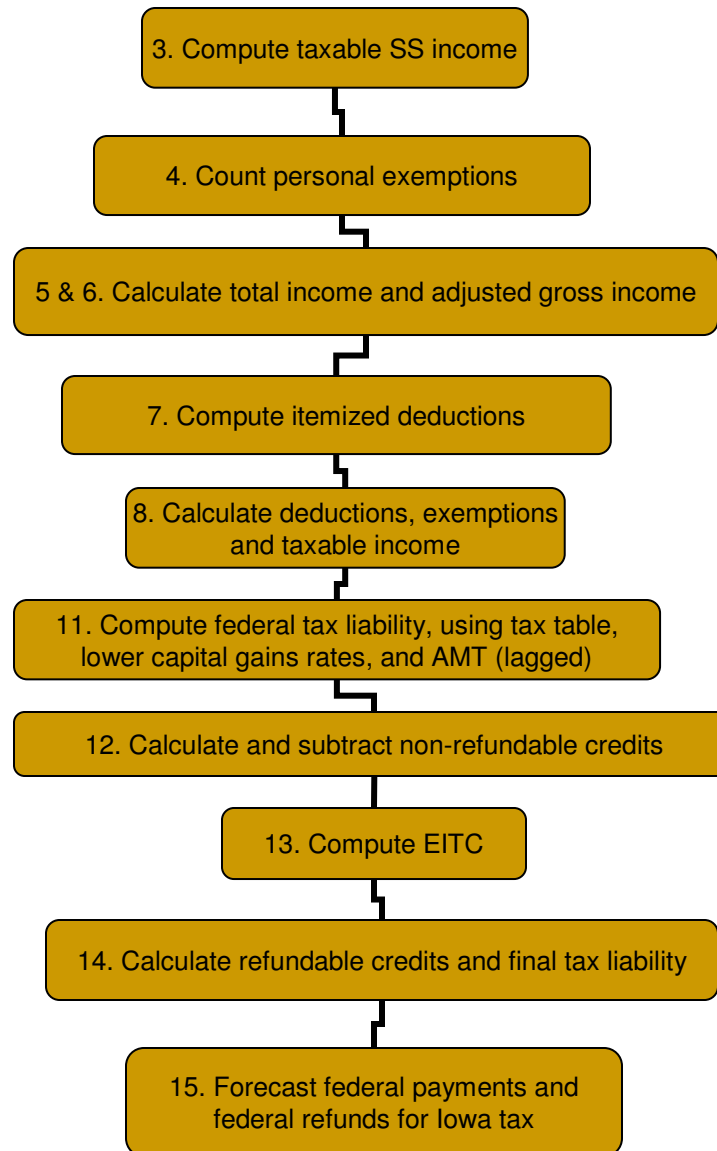
Federal Deductibility in the Model

- Model projects federal tax liability for each taxpayer
- Better than previous model
 - Previous model used only aggregate changes in federal payments/refunds, now federal changes vary by individual
- But federal deductibility requires information about:
 - Federal payments during calendar year (likely exceed liability)
 - Federal refund during calendar year (prior tax year)
- NOT the SAME!!
- Must estimate federal payments and federal refund
 - Wages, non-wage income, federal taxes owed
 - Varies by filing status, number of dependents, resident status, type of income (C, E, F)

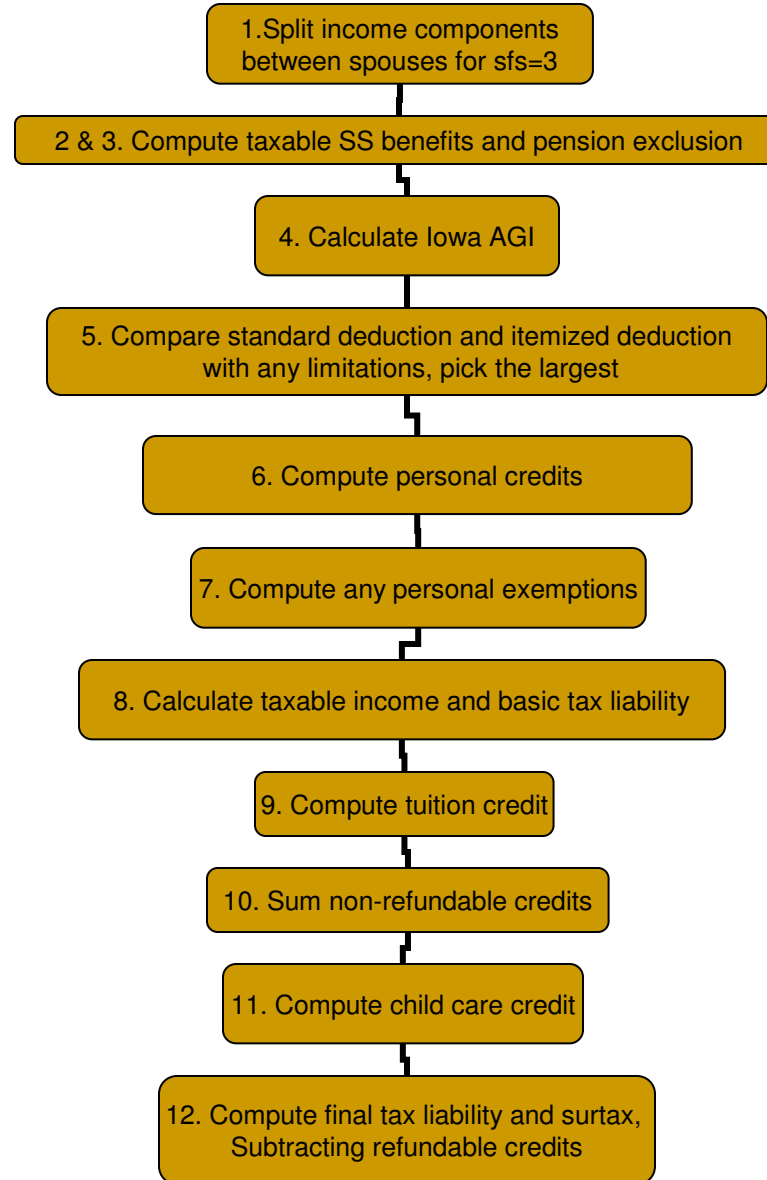
Individual Income Tax Micro Model Flow



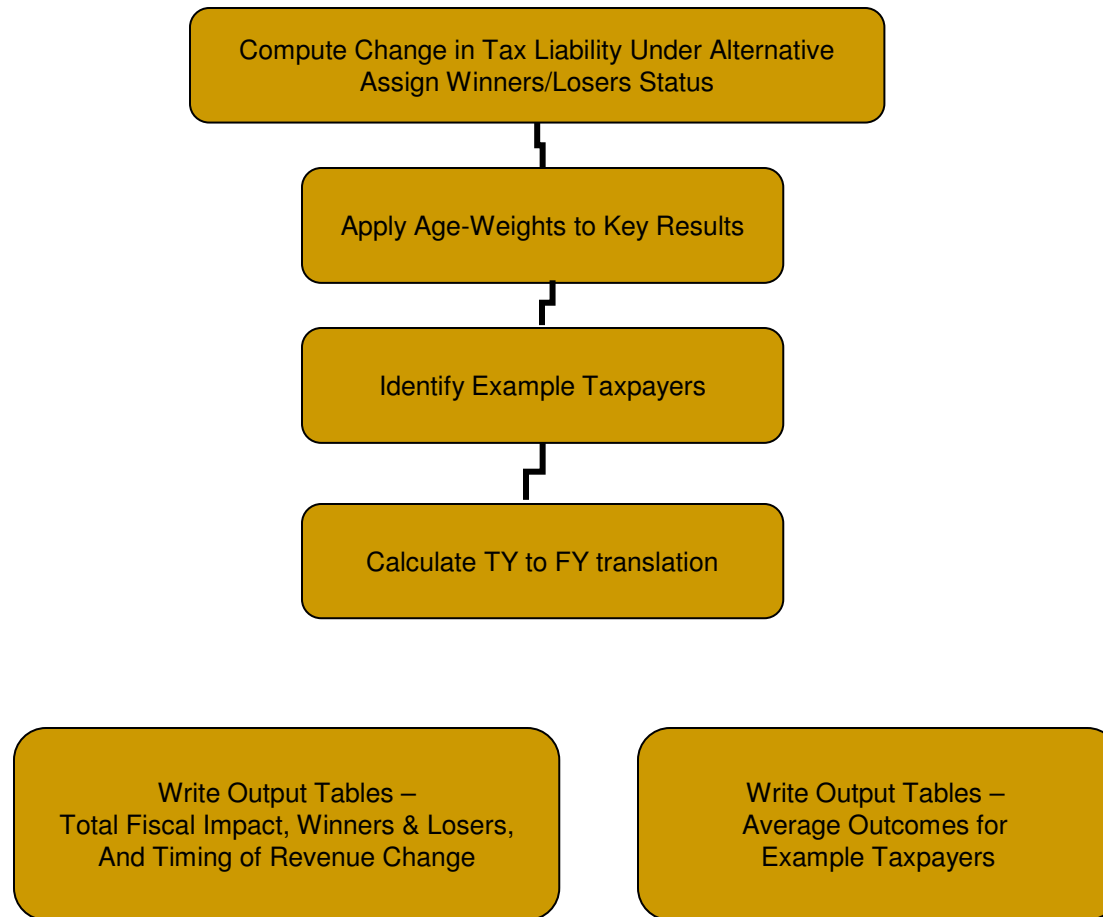
Federal Tax Calculation – Old and New



Iowa Tax Calculation – Old and New



After Both Runs



Four Standard Tables –

1. TY 2012 Tax Parameters

Table 1. Tax Year 2012 Current Law and Proposed Law Tax Parameters

<i>Tax Year 2012</i>	<i>Current Law</i>	<i>Proposed Law</i>
Federal Tax Deduction	Unlimited	No change
Personal/Dependent/Aged Credits	\$40/40/20	No change
Minimum Filing Thresholds	\$9.0/\$13.5 K	No change
Elderly Minimum Filing Thresholds	\$24/\$32 K	No change
Itemized/Standard Deduction	\$1,860/\$4,590	\$3720/\$9180
Social Security Income	77% exclusion	No change
Pension/Other Retirement Income	\$6/\$12 K	No change
Iowa Capital Gains Deduction	Unlimited	No change
Alternate Tax Threshold	\$13.5K/\$32 K elderly	No change
Alternate Tax Rate	8.98%	No change
Earned Income Tax Credit	Refundable 7%	No change

Tax Brackets and Rates (TY 2012)

<i>Over</i>	<i>But Not Over</i>	<i>Current Rates</i>	<i>Proposed Rates</i>
\$0	\$1,469	0.36%	0.36%
\$1,469	\$2,938	0.72%	0.72%
\$2,938	\$5,876	2.43%	2.43%
\$5,876	\$13,221	4.50%	4.50%
\$13,221	\$22,035	6.12%	6.12%
\$22,035	\$29,380	6.48%	6.48%
\$29,380	\$44,070	6.80%	6.80%
\$44,070	\$66,105	7.92%	7.92%
\$66,105	or more	8.98%	8.98%

2. Fiscal Impact Across AGI Distribution (Current Law) and Total for TY 2012

Table 2. Estimated Change in Tax Liability Under a Doubling of the Iowa Standard Deduction

Estimates for Tax Year 2012

All Filers

Adjusted Gross Income	Current Law Returns	Total AGI Current	Total Tax Liability		Change in Tax Liability		
			Current	Proposed	Total	Average ^a	Percentage
Less than \$20,000	452,811	\$482,024,472	\$16,592,197	\$2,893,466	-\$13,698,731	-\$30.25	-82.56%
\$20,001 to 30,000	183,177	4,541,516,011	98,075,267	76,679,224	-21,396,043	-116.81	-21.82%
\$30,001 to 40,000	157,295	5,436,632,667	153,154,040	135,766,785	-17,387,255	-110.54	-11.35%
\$40,001 to 50,000	124,607	5,525,198,099	172,779,544	160,866,707	-11,912,837	-95.60	-6.89%
\$50,001 to 60,000	102,714	5,569,251,839	181,768,633	172,906,719	-8,861,914	-86.28	-4.88%
\$60,001 to 70,000	87,742	5,625,044,794	190,017,937	183,237,733	-6,780,204	-77.27	-3.57%
\$70,001 to 80,000	74,419	5,503,478,310	193,160,337	188,140,593	-5,019,744	-67.45	-2.60%
\$80,001 to 90,000	61,807	5,179,322,522	187,021,696	183,460,033	-3,561,663	-57.63	-1.90%
\$90,001 to 100,000	49,790	4,664,201,186	172,599,408	170,090,515	-2,508,893	-50.39	-1.45%
\$100,001 to 125,000	80,841	8,872,972,244	336,443,638	333,186,386	-3,257,252	-40.29	-0.97%
\$125,001 to 150,000	41,559	5,582,608,288	215,377,566	214,077,758	-1,299,808	-31.28	-0.60%
\$150,001 to 175,000	22,881	3,639,264,120	140,453,364	139,838,595	-614,769	-26.87	-0.44%
\$175,001 to 200,000	13,906	2,553,251,132	99,742,448	99,373,548	-368,900	-26.53	-0.37%
\$200,001 to 250,000	16,000	3,498,206,470	135,136,433	134,762,594	-373,839	-23.36	-0.28%
\$250,001 to 500,000	23,771	7,934,632,850	278,438,408	278,014,576	-423,832	-17.83	-0.15%
\$500,001 to 1,000,000	8,970	6,063,936,503	175,680,417	175,580,177	-100,240	-11.18	-0.06%
\$1,000,001 or more	6,717	36,973,384,857	277,622,031	277,593,370	-28,661	-4.27	-0.01%
Composite Returns	1,424	332,393,927	21,960,085	21,282,302	-677,783	-475.97	-3.09%
Totals	1,510,429	\$117,977,320,292	\$3,046,023,449	\$2,947,751,081	-\$98,272,368	-\$65.06	-3.23%

Analysis Using Data from Tax Year 2008

Tax Research and Policy Analysis Section, Iowa Department of Revenue

a. The average change in tax liability is computed over all households, not just those experiencing a change under this proposal.

3. Winners and Losers in TY 2012

Table 3. Estimated Distribution of Taxpayers Experiencing Decreases and Increases in Total Tax Liability Under a Doubling of the Iowa Standard Deduction

Estimates for Tax Year 2012

All Filers

Adjusted Gross Income Current Law	Count of Returns by Estimated Change in Tax			Estimated Change in State Income Tax and School Surtax Liability			
	Taxpayers with No Change	Taxpayers with Decrease	Taxpayers with Increase	Taxpayers with Tax Liability Decrease		Taxpayers with Tax Liability Increase	
				Total	Average	Total	Average
Less than \$20,000	291,226	161,585	0	-\$14,213,443	-\$87.96	\$0	\$0.00
\$20,001 to 30,000	45,025	138,152	0	-22,234,935	-160.95	0	0.00
\$30,001 to 40,000	53,278	104,018	0	-18,105,745	-174.06	0	0.00
\$40,001 to 50,000	55,956	68,651	0	-12,433,970	-181.12	0	0.00
\$50,001 to 60,000	55,218	47,496	0	-9,270,407	-195.18	0	0.00
\$60,001 to 70,000	53,248	34,494	0	-7,102,458	-205.90	0	0.00
\$70,001 to 80,000	49,459	24,960	0	-5,263,837	-210.89	0	0.00
\$80,001 to 90,000	44,618	17,189	0	-3,738,816	-217.51	0	0.00
\$90,001 to 100,000	38,036	11,754	0	-2,635,023	-224.18	0	0.00
\$100,001 to 125,000	65,839	15,002	0	-3,421,242	-228.05	0	0.00
\$125,001 to 150,000	35,751	5,806	0	-1,367,491	-235.53	0	0.00
\$150,001 to 175,000	20,160	2,722	0	-646,724	-237.59	0	0.00
\$175,001 to 200,000	12,274	1,632	0	-388,524	-238.07	0	0.00
\$200,001 to 250,000	14,351	1,650	0	-393,132	-238.26	0	0.00
\$250,001 to 500,000	21,889	1,881	0	-444,813	-236.48	0	0.00
\$500,001 to 1,000,000	8,503	467	0	-104,027	-222.76	0	0.00
\$1,000,001 or more	6,555	162	0	-29,355	-181.20	0	0.00
Composite Returns	693	731	0	-677,783	-927.20	0	0.00
Totals	872,078	638,349	0	-\$102,471,725	-\$160.53	\$0	\$0.00

Analysis Using Data from Tax Year 2008
Tax Research and Policy Analysis Section, Iowa Department of Revenue

4. Fiscal Year Impact/Timing Table

Table 4. Translation of Tax Year Estimated Impact to Fiscal Year Estimated Impact Under a Doubling of the Iowa Standard Deduction

Tax Year Estimates	TY 2012	TY 2013	TY 2014	TY 2015	TY 2016
Tax Component Shares					
Withholding	-44.129	-80.578	-83.440	-86.932	-89.606
Estimate Payments	-2.735	-2.075	-2.235	-2.437	-2.577
Final Payments	-27.526	-12.707	-14.282	-16.664	-18.206
Refunds	-23.882	-5.627	-5.576	-5.466	-5.413
Total	-\$98.272	-\$100.988	-\$105.533	-\$111.498	-\$115.802
Fiscal Year Estimates					
	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016
Withholding	-4.413	-72.834	-81.754	-84.875	-88.031
Estimate Payments	-0.402	-2.941	-2.122	-2.294	-2.478
Final Payments	0.000	-27.526	-12.707	-14.282	-16.664
Refunds	0.000	-23.882	-5.627	-5.576	-5.466
Total	-\$4.815	-\$127.183	-\$102.211	-\$107.027	-\$112.638

Analysis Using Data from Tax Year 2008

Tax Research and Policy Analysis Section, Iowa Department of Revenue

Translation to fiscal year based on observed payment streams of taxpayers affected by the proposed policy change.

Additional Complication with Federal Tax Laws – Tax Relief Act of 2010

- Under current law, numerous federal tax cuts and credit expansions will expire in TY 2013
- Those expirations are assumed in the model's baseline and alternative
- Legislators may want to assume those cuts will continue – separate model exists
- Multiple baselines for TY 2013 and later are possible

Additional Distributional Output Possible for Diagnostic Analysis

- Tables by Proposed AGI
 - When policy changes AGI calculation, useful to reorder returns in output
- Tables by AGI group
 - By resident/non-resident
 - By state filing status
 - single/married joint/married separate
 - By age group
 - <22/23-34/35-44/45-54/55-64/65-74/75+
 - By county of residence
- Federal tax liability, predicted payments, and predicted refunds

Additional analysis: 30 Example Taxpayers – By Filing Status, Dependents, Age

Table 5. Average Change in Iowa Tax Liability for Example Taxpayers Under a Doubling of the Iowa Standard Deduction

<i>Tax Year 2012</i>									
Example Taxpayer Characteristics							Final Iowa Tax	Final Iowa Tax	
Iowa Filing Status	Dependents	Age	Iowa AGI Group	Wages	Social Security ¹	Other Income ²	Current Law	Proposed Law	Difference
Single	0	26-64	\$24,000-\$26,000	\$22,662	\$432	\$2,441	\$765	\$679	-\$86
Single	0	26-64	\$38,000-\$42,000	\$36,823	\$249	\$3,244	\$1,463	\$1,394	-\$69
Single	0	26-64	\$73,000-\$77,000	\$64,744	\$368	\$11,569	\$3,088	\$3,049	-\$39
Single	0	26-64	\$145,000-\$155,000	\$94,193	\$712	\$58,533	\$7,127	\$7,102	-\$25
Head of Household	1	26-64	\$24,000-\$26,000	\$23,277	\$126	\$1,283	\$453	\$210	-\$243
Head of Household	1	26-64	\$38,000-\$42,000	\$37,636	\$81	\$1,738	\$1,335	\$1,119	-\$216
Head of Household	1	26-64	\$73,000-\$77,000	\$66,230	\$31	\$7,214	\$3,086	\$2,959	-\$127
Head of Household	1	26-64	\$145,000-\$155,000	\$104,689	\$0	\$43,277	\$7,703	\$7,615	-\$88
Head of Household	2	26-64	\$24,000-\$26,000	\$23,664	\$84	\$1,132	\$294	\$57	-\$237
Head of Household	2	26-64	\$38,000-\$42,000	\$37,989	\$98	\$1,586	\$1,296	\$1,077	-\$219
Head of Household	2	26-64	\$73,000-\$77,000	\$64,963	\$2	\$9,206	\$3,140	\$3,030	-\$110
Head of Household	2	26-64	\$145,000-\$155,000	\$113,076	\$0	\$34,537	\$7,392	\$7,348	-\$44
Married, Separate	1	26-64	\$24,000-\$26,000	\$22,097	\$2,517	\$2,933	\$233	\$157	-\$76
Married, Separate	1	26-64	\$38,000-\$42,000	\$35,220	\$1,615	\$4,960	\$1,074	\$981	-\$93
Married, Separate	1	26-64	\$73,000-\$77,000	\$68,649	\$283	\$5,768	\$2,765	\$2,700	-\$65
Married, Separate	1	26-64	\$145,000-\$155,000	\$129,325	\$100	\$20,694	\$6,667	\$6,645	-\$22
Married, Separate	2	26-64	\$24,000-\$26,000	\$20,899	\$1,509	\$3,973	\$103	\$27	-\$76
Married, Separate	2	26-64	\$38,000-\$42,000	\$35,405	\$819	\$4,385	\$854	\$770	-\$84
Married, Separate	2	26-64	\$73,000-\$77,000	\$69,531	\$118	\$4,914	\$2,792	\$2,739	-\$53
Married, Separate	2	26-64	\$145,000-\$155,000	\$128,217	\$131	\$18,994	\$6,626	\$6,607	-\$19
Single	0	<=25	less than \$30,000	\$15,495	\$24	\$286	\$415	\$335	-\$80
Married, Joint	0	<=25	less than \$30,000	\$19,539	\$97	-\$2,538	\$392	\$235	-\$157
Single	0	>=65	\$24,000-\$26,000	\$4,174	\$15,373	\$23,925	\$473	\$426	-\$47
Single	0	>=65	\$38,000-\$42,000	\$6,144	\$15,854	\$36,773	\$1,027	\$986	-\$41
Single	0	>=65	\$73,000-\$77,000	\$8,963	\$17,162	\$69,343	\$2,582	\$2,552	-\$30
Single	0	>=65	\$145,000-\$155,000	\$9,946	\$20,360	\$142,610	\$6,665	\$6,632	-\$33
Married, Joint	0	>=65	\$24,000-\$26,000	\$7,975	\$23,858	\$23,589	\$232	\$134	-\$98
Married, Joint	0	>=65	\$38,000-\$42,000	\$11,878	\$23,311	\$33,988	\$1,017	\$884	-\$133
Married, Joint	0	>=65	\$73,000-\$77,000	\$20,282	\$24,093	\$61,858	\$2,546	\$2,392	-\$154
Married, Joint	0	>=65	\$145,000-\$155,000	\$32,898	\$27,580	\$124,174	\$5,295	\$5,192	-\$103

Analysis Using Data from Tax Year 2008

Tax Research and Policy Analysis Section, Iowa Department of Revenue

Results based on average outcomes for taxpayers forecasted to meet the characteristics of the various examples listed.

1. Social security benefits includes all benefits reported by the taxpayer, not just those subject to income tax.

2. Other income includes any pension income excluded from Iowa AGI.