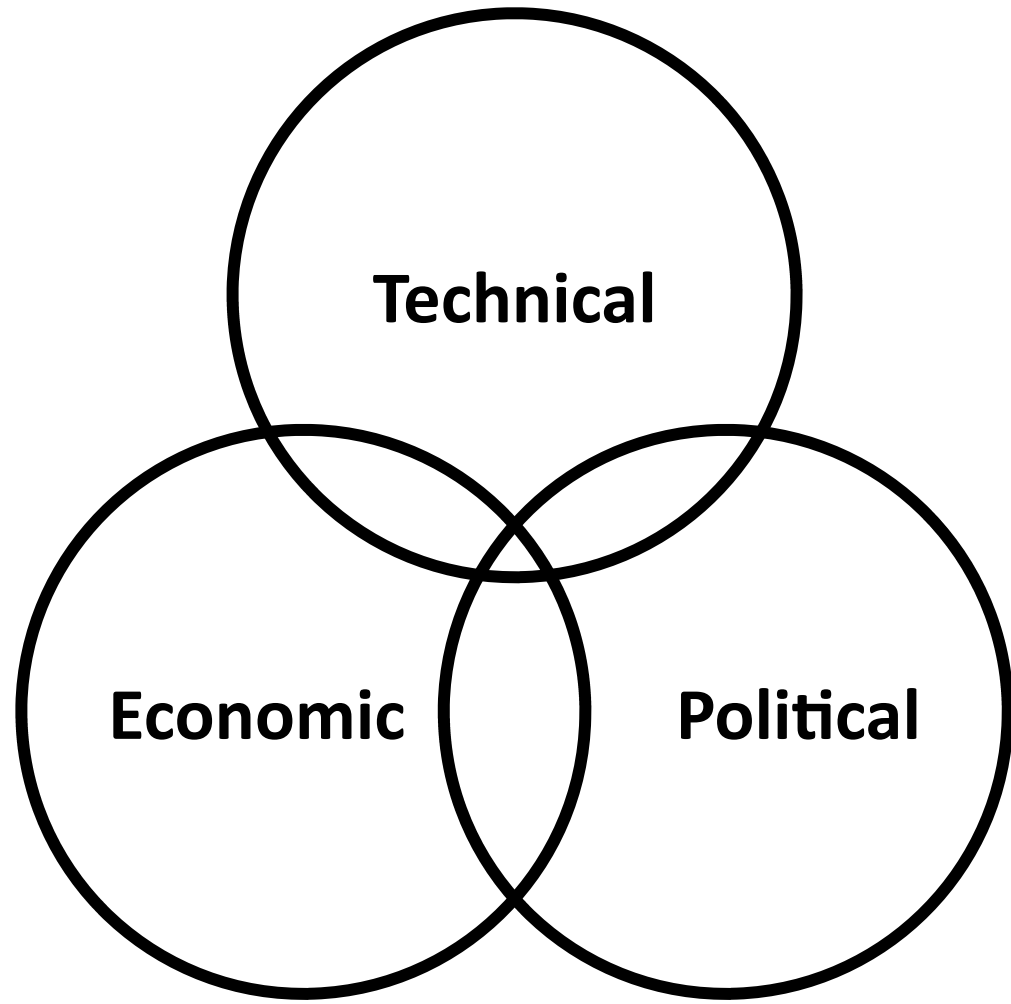


Tax Reform in Utah

Arizona Joint Task Force on Income Tax Reform

September 4, 2013

David Stringfellow
Chief Economist
State of Utah



Outline of this Presentation

History of Utah's Reform

- Timeline
- Motivation
- Implementation

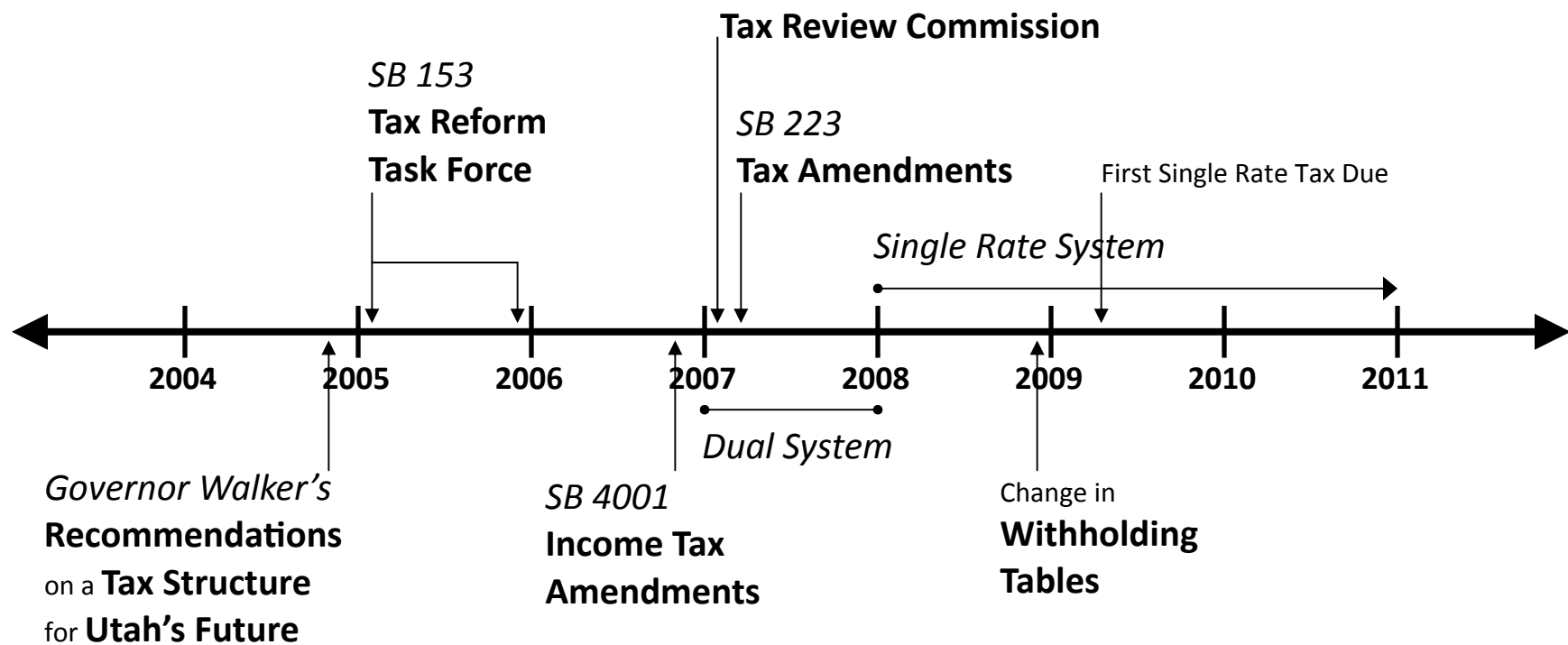
Analysis of Utah's Reform

- Theory
- Tax Model
- Information
- Retrospective



Timeline of Utah's Tax Reform

Income tax reform spanned nearly 5 years.



Debate in Utah's Tax Reform

Four public bodies extensively debated reform.

- **Tax Reform Task Force** - 4 Senate, 9 House, 2 Executive staff
- **Tax Review Commission** - 2 Senate, 2 House, ~10 tax experts
- **Interim Revenue and Taxation** - 5 Senate, 12 House
- **Legislature** - 29 Senate, 75 House

Tax Reform was a major focus of two Governor's.

- **Olene Walker**
- **Jon Huntsman Jr**



Accomplishing Utah's Tax Reform

The Income Tax Reform passed unanimously.

UTAH STATE SENATE 56th LEGISLATURE 2007 GENERAL SESSION				SEQUENCE #571	STATE OF UTAH HOUSE OF REPRESENTATIVES 2007 General Session of the 57th Legislature VOTE TABULATION		2SSB223 BY Niederhauser, W.		
2SSB 223 CONCUR IN HOUSE AMENDMENT Concurrence		RCS# 820 2/28/2007 4:55:08 PM		Tax Amendments					
Tax Amendments		FEBRUARY 28, 2007 10:24:40 AM		Tax Amendments		Curtis SPEAKER OF THE HOUSE			
Niederhauser, W.				Amended					
26 YEAS 0 NAYS 3 ABSENT		PASSED		YEAS - 75					
YEAS 26				Aagard	Duckworth	Hunsaker	Oda		
				Allen	Dunnigan	Hutchings	Painter		
				Andersen	Ferry	Johnson	Ray		
				Barrus	Fisher, Janice	King	Riesen		
				Becker	Fisher, Julie	Kiser	Sandstrom		
				Bigelow	Fowlke	Last	Seelig		
				Bird	Frank	Litvack	Shurtliff		
				Biskupski	Froerer	Lockhart	Snow		
				Bowman	Garn	Mascaro	Sumsion		
				Brown	Gibson	Mathis	Tilton		
				Buxton	Gowans	McGee	Urquhart		
				Clark, D.	Grover	McIff	Walker		
				Clark, S.	Hansen	Menlove	Wheatley		
				Cosgrove	Harper	Morgan	Wheeler		
				Daw	Hemingway	Morley	Wiley		
				Dee	Hendrickson	Moss	Wimmer		
				Donnelson	Herrod	Neuenschwander	Wyatt		
				Dougall	Holdaway	Newbold	Curtis		
				Draxler	Hughes	Noel			
NAYS 0									
ABSENT 3									
Bramble	Mayne	Walker							

Motivation for Utah's Tax Reform

The motivation was multifaceted.

Economic

- Optimal Taxation
 - Broad Base
 - Low Rate
- Tax Incidence
- Efficiency
 - Distortions
 - Incentives
- Equity
 - Benefits Received
 - Ability to Pay
 - Horizontal Equity
 - Vertical Equity
- Transparency

Political

- Comprehensive
- Revenue
 - Sufficiency
 - Diversity
 - Volatility
 - Tax Cuts / Tax Hikes
 - Winners and Losers
- Competitiveness
 - Business Friendly
 - Recruiting / Entrepreneurship
- Administration
 - Simplicity

Technical

- Modeling
 - Data
 - Calculations
 - Simulations
- Dynamic Effects
 - Increased Activity
 - Budget Impacts
- Revenue Forecasts
- Distributional Analysis
- Volatility
- Behavior
 - Compliance
 - Cliffs, Marginal Impacts



Economics of Tax Reform

Economists view the exercise of reform differently.

Theory

Standard Theory is that a tax system should be chosen to maximize a social welfare function subject to a set of constraints. Optimality is value laden.

Ramsey - Taxes inversely proportional to consumer's elasticity of demand.

Buchanan - Lump sum taxes.

Mirrlees - Taxing is a game of imperfect information surrounding revealed abilities.

Practice

Broad Base, Low Rate.

What are the Effective Marginal Tax Rates?

What identifiable characteristics can differentiate taxpayers?



Politics of Tax Reform

Politicians are concerned about the interests of people and groups of people. Are unwilling to act without trust in the answers to questions.

Funding - How will tax changes impact current and future budgets?

Constituents - Who wins and who loses?

Taxpayers - Will this make it easier for them to pay?

Business - Are people going to want to move here because of this?



Technicalities of Tax Reform

Data and technical expertise is often fractured, inconsistent, dilute, and incapable of answering relevant questions.

Data - Hard to obtain, guarded by laws to protect privacy

Models - Difficult to program, require a grasp of big data, statistics, tax law, programming, simulations, forecasting, economics, politics, accounting.

Communication - The model needs to produce charts, graphs, tables of the impacts from potential reform that are externally and internally consistent.



Implementation for Utah's Tax Reform

Implementation was incremental and demand driven.

Getting the **economic**, **political**, and **technical** spheres to interact productively was not trivial.

- Staff from the Legislature, Governor, Tax Commission worked collaboratively.
- Many models and systems for addressing questions were consolidated into a single simulation forecast model.
- Policy makers had broad access to the staff, the simulation model, official information came from a common source.
- The simulation model was used live, during meetings, to answer questions and explore alternatives.



Economic Implementation

Tax Experts had a forum to voice preferences and explore options.

- Tax Experts were a part of every public body.
- The Governor used a group of private tax experts in addition to staff economists to draft proposals.



Political Implementation

There were four different public bodies listening to tax reform proposals.

- Each body focused on different aspects of reform.
- Advocacy groups participated actively in the process.
- The various groups held meetings throughout the state to encourage feedback from taxpayers.
- Broad **Policy Principles** were narrowed to **Frameworks** which became **Legislation**.



Technical Implementation

Models and staff consolidated effort into a single model.

- A Standard Simulation Model was used to evaluate proposals comprehensively.
- Staff worked collaboratively, I was a dual employee of both the Governor's Office and Tax Commission.
- The law was modified to allow legislative staff to access de-identified tax data.



Analysis of Utah's Reform

Tax reform was the most analytically intensive exercise of any legislation in Utah's history.

- Standardize all of the data and calculations.
- Common tool to build trust in the analysis.
- Simulation model provided distributional effects of tax reform.
- Simulation model calculated the budgetary impact of reform.
- Simulation model forecast future revenue collections.
- Online Tax Calculators comparing reforms.



Tax Simulation Model

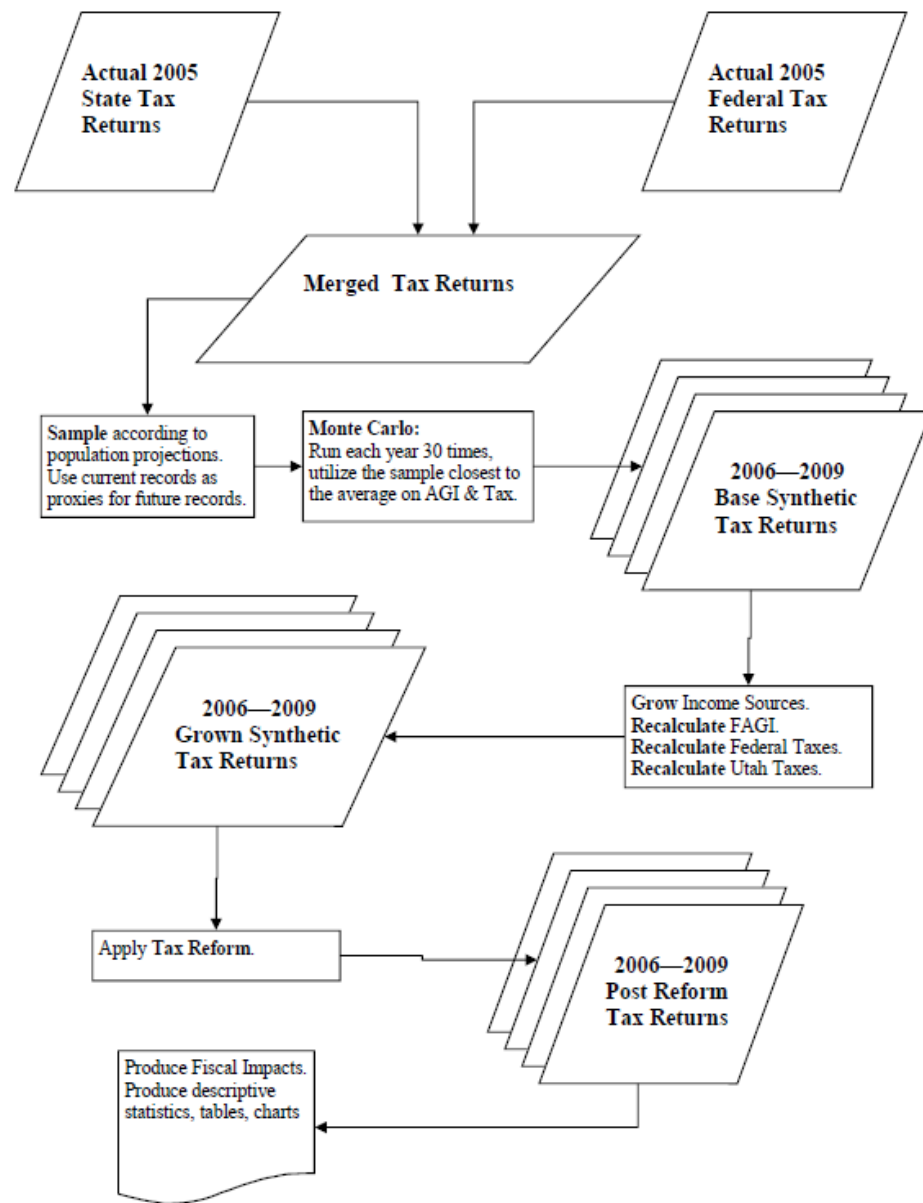
The model came from Utah and Federal Tax Information.

- Took ~1 million records from prior year's Utah tax filings.
- Merged with ~1 million records from Federal filings (IMF, IRTF).
- Produced synthetic datasets of future taxpayers controlled to population by age forecasts.
- Federal information contained detailed sources of income, these were grown stochastically according to Global Insights forecasts.
- A Monte Carlo sampling (30 full sets of taxpayer's) of each of 4 future years of returns was calculated and normalized to produce a representative sample of future returns.
- Federal and State Taxes were recalculated based on new income and were then compared with various systems of reform.
- Summary statistics, graphs, tables, charts, fiscal notes were generated.



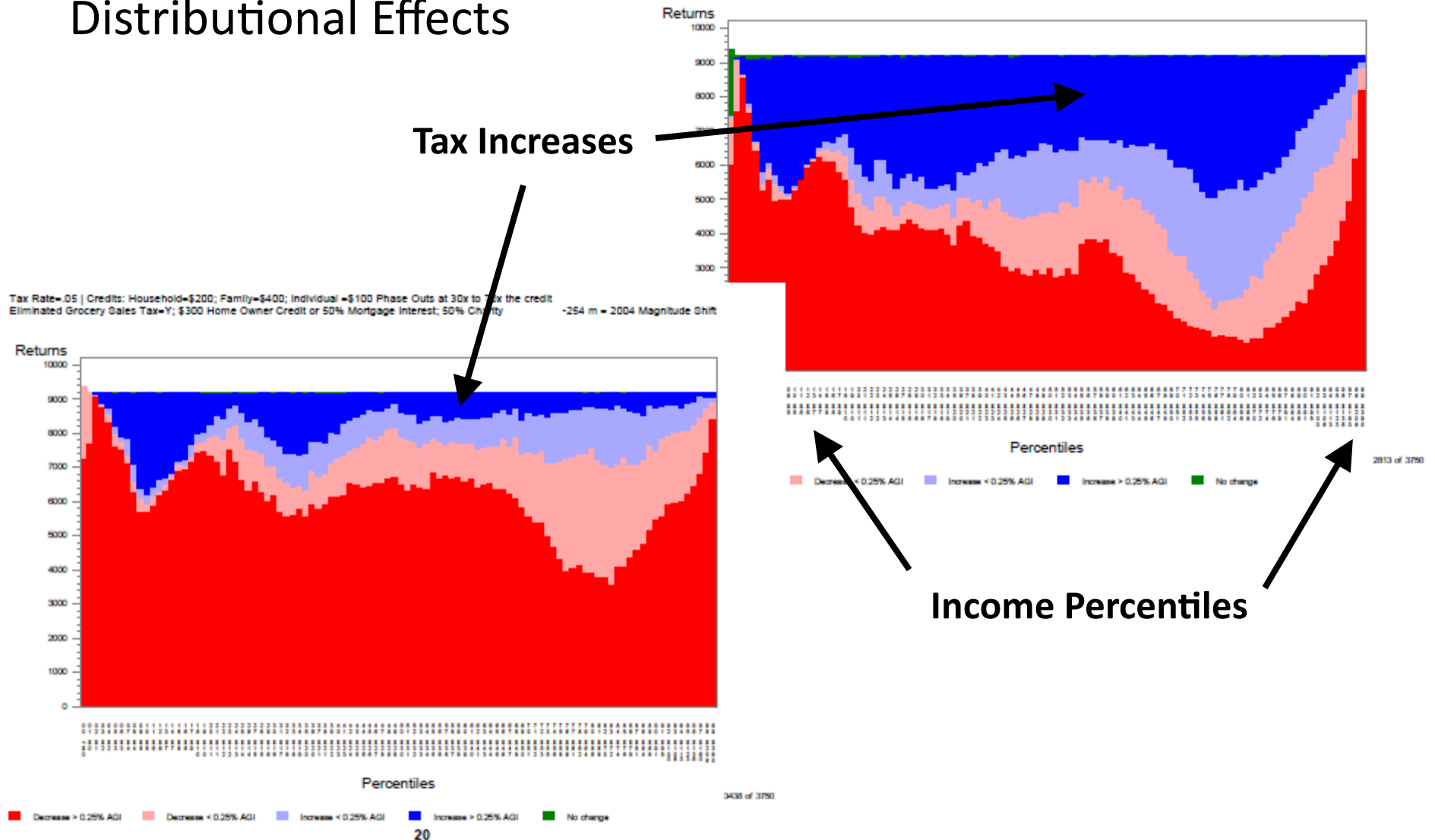
Tax Simulation Model

Diagram of the model.



Tax Simulation Model Information

Distributional Effects



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Tax Simulation Model Information

Distributional Effects—Group Analysis

Table 22
2008 Top 10 Groups with Tax Increases and Accompanying Cohorts

	Status	Filing Status	Exemptions	Standard Deduction	Retired	Income Group	Taxpayers	Group Share	Average Effective Rate	Average Current Tax	Average Income	Average Deduction	Median Change
1	Increase	Married Filing Joint	2	No	No	>\$100k	10,640	21%	4.1%	\$14,458	\$353,670	\$91,795	\$182
	Decrease	Married Filing Joint	2	No	No	>\$100k	39,176	79%	4.7%	\$12,469	\$258,622	\$32,918	-\$144
	Everyone	Married Filing Joint	2	No	No	>\$100k	49,816	100%	4.6%	\$12,894	\$278,923	\$45,493	-\$123
2	Increase	Single	0	Yes	No	>\$5k and <=\$15k	9,343	27%	1.4%	\$128	\$9,172	\$5,409	\$5
	Decrease	Single	0	Yes	No	>\$5k and <=\$15k	25,386	73%	1.4%	\$153	\$9,051	\$5,384	-\$14
	Everyone	Single	0	Yes	No	>\$5k and <=\$15k	34,729	100%	1.4%	\$146	\$9,084	\$5,391	-\$8
3	Increase	Married Filing Joint	2	No	No	>\$40k and <=\$70k	6,635	25%	2.6%	\$1,479	\$56,347	\$20,711	\$147
	Decrease	Married Filing Joint	2	No	No	>\$40k and <=\$70k	20,033	75%	3.5%	\$2,006	\$58,072	\$18,969	-\$96
	Everyone	Married Filing Joint	2	No	No	>\$40k and <=\$70k	26,668	100%	3.2%	\$1,875	\$57,643	\$19,402	-\$78
	Increase	Single	1	No	No	>\$70k and <=\$100k	5,770	45%	4.2%	\$3,538	\$84,978	\$23,330	\$25

Likelihood of Tax Increase within a group

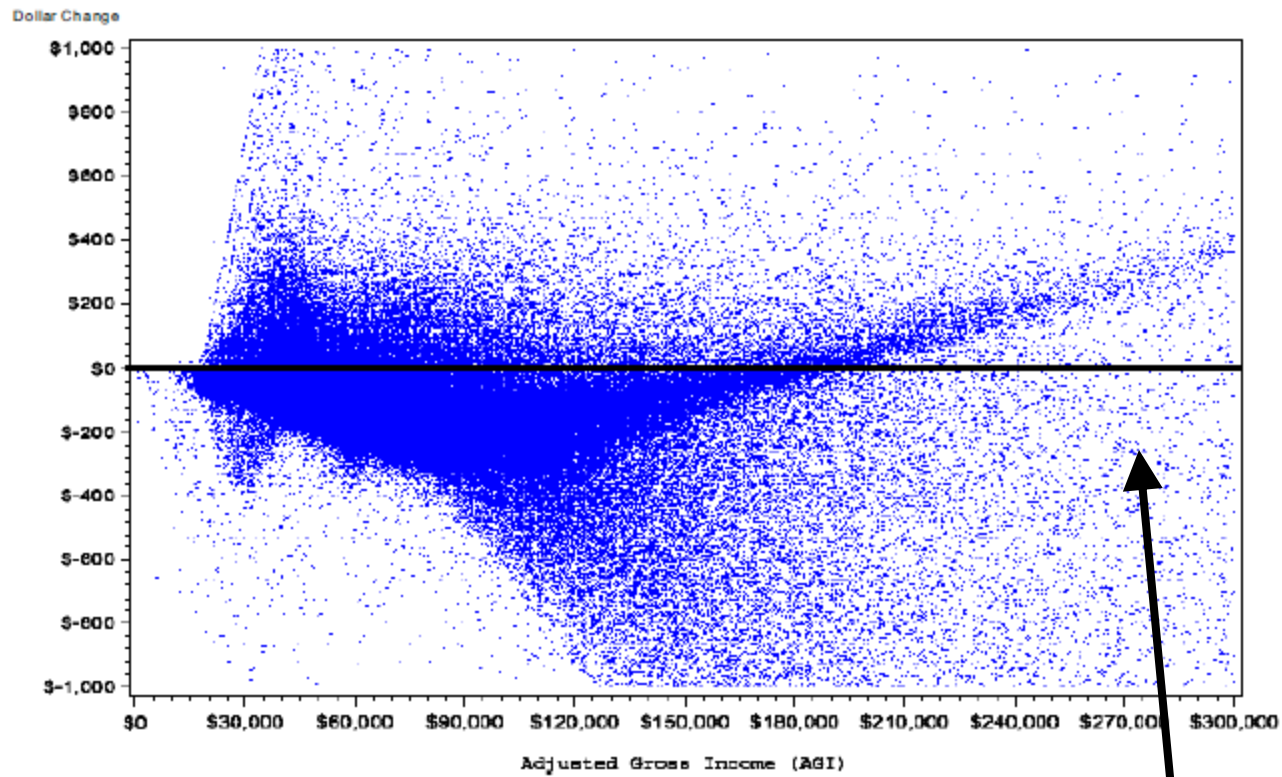


Tax Simulation Model Information

Distributional Effects—Group Analysis

Chart 4

Estimated Dollar Change in Income Tax - Married



8

Specific Tax Change of de-identified Taxpayer



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[History](#) · [Timeline](#) · [Motivation](#) · [Implementation](#) · [Analysis](#) · [Theory](#) · [Tax Model](#) · **Information** · [Retrospective](#)

Tax Simulation Model Information

Budgetary Effects

Fiscal Year	Fiscal Factor	Fiscal Year Baseline Tax	% Change	Fiscal Year Proposed Tax	Change in Tax
2006	82.0%	\$2,276,460,433			
2007	82.0%	\$2,569,686,400	12.9%	\$2,476,580,443	
2008	82.0%	\$2,717,986,742	8.5%	\$2,685,819,579	(\$25,541,791)
2009	82.0%	\$3,030,887,303	8.7%	\$2,921,865,227	(\$109,022,076)

In tax year 2008, 10.3% of taxpayers are projected to realize income tax increases.

Actual collections were \$2,561,383,572

forecast error was 0.37% with tax growing 12.5%

This was 18 months before fiscal year end.



Tax Simulation Model Information

Volatility Analysis

Slight improvements in volatility

Table 18
Comparing Income Tax Systems Volatility

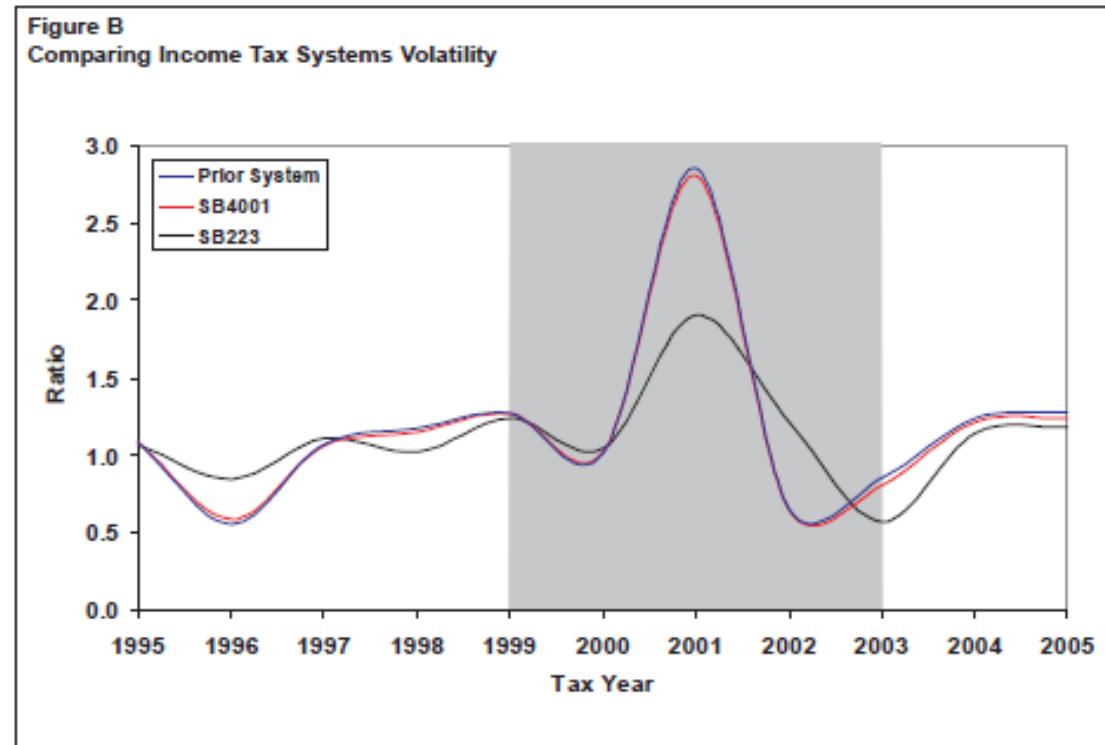
Year	Taxpayers	Utah AGI		Prior System			SB4001			SB223			Elasticity		
		millions	% chg	millions	chg	% chg	millions	chg	% chg	millions	chg	% chg	Prior	SB4001	SB223
1994	804,380	\$24,533		\$979			\$953			\$958			1.09	1.09	1.07
1995	843,610	\$27,178	10.8%	\$1,094	\$115	11.7%	\$1,065	\$112	11.7%	\$1,068	\$111	11.5%	0.56	0.59	0.84
1996	880,078	\$30,092	10.7%	\$1,159	\$65	6.0%	\$1,132	\$67	6.3%	\$1,165	\$96	9.0%	1.07	1.06	1.11
1997	914,419	\$33,259	10.5%	\$1,289	\$130	11.2%	\$1,258	\$126	11.1%	\$1,301	\$136	11.7%	1.17	1.15	1.02
1998	939,089	\$35,473	6.7%	\$1,390	\$100	7.8%	\$1,355	\$97	7.7%	\$1,389	\$89	6.8%	1.27	1.27	1.24
1999	963,512	\$38,469	8.4%	\$1,538	\$149	10.7%	\$1,500	\$145	10.7%	\$1,534	\$145	10.4%	1.02	1.02	1.05
2000	987,688	\$41,009	6.6%	\$1,642	\$103	6.7%	\$1,602	\$101	6.8%	\$1,641	\$106	6.9%	2.86	2.81	1.90
2001	997,748	\$40,249	-1.9%	\$1,555	-\$87	-5.3%	\$1,519	-\$83	-5.2%	\$1,583	-\$58	-3.5%	0.65	0.64	1.21
2002	1,002,124	\$39,578	-1.7%	\$1,538	-\$17	-1.1%	\$1,502	-\$16	-1.1%	\$1,551	-\$32	-2.0%	0.86	0.80	0.57
2003	997,347	\$41,471	4.8%	\$1,601	\$63	4.1%	\$1,560	\$58	3.8%	\$1,597	\$42	2.7%	1.24	1.22	1.14
2004	1,018,358	\$45,326	9.3%	\$1,785	\$184	11.5%	\$1,737	\$177	11.3%	\$1,772	\$169	10.6%	1.28	1.24	1.18
2005	1,084,995	\$54,009	19.2%	\$2,222	\$436	24.4%	\$2,148	\$411	23.7%	\$2,161	\$399	22.6%			

The Single Rate System would have lost less revenue than the other systems during the 2002 recession.



Tax Simulation Model Information

Volatility Analysis

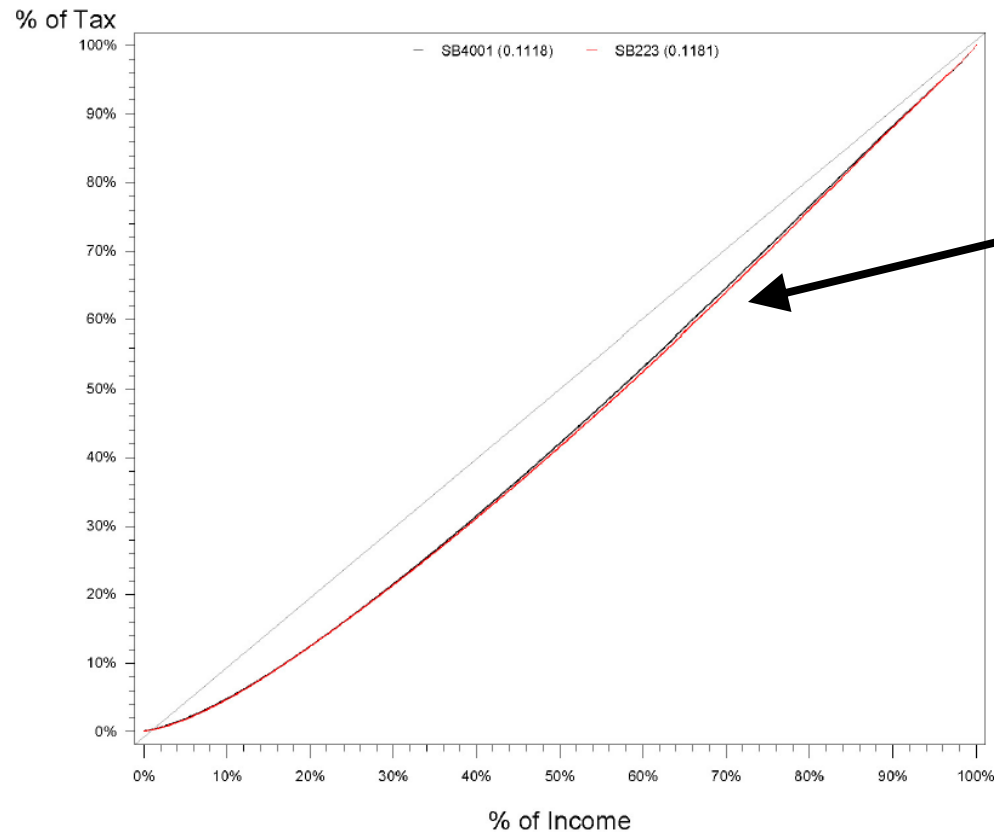


Underlying Volatility is mostly a function of economic activity, but the tax system can contribute by amplifying or dampening volatility.



Tax Simulation Model Information

Progressivity Analysis



Slightly more progressive
Lorentz Curves and Suits Index



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Tax Simulation Model Information

Progressivity Analysis

Table 21
2008 Distributional Impacts of Senate Bill 223

Category	Mean Tax				Share of Tax Paid			% of Cut
	Current	Proposed	Change	% Change	Current	Proposed	Change	
<= \$50,000	\$495	\$473	-\$22	-4%	12.0%	12.0%	-0.1%	14%
> \$50,000	\$6,030	\$5,817	-\$213	-4%	88.0%	88.0%	0.1%	86%
<=\$5k	\$3	\$1	-\$2	-62%	0.0%	0.0%	0.0%	0%
\$5 - 15k	\$147	\$128	-\$19	-13%	0.6%	0.5%	-0.1%	2%
\$15 - 25k	\$477	\$448	-\$29	-6%	1.9%	1.8%	0.0%	3%
\$25 - 40k	\$1,298	\$1,252	-\$47	-4%	5.1%	5.1%	0.0%	5%
\$40 - 70k	\$3,742	\$3,576	-\$165	-4%	14.8%	14.7%	-0.1%	18%
\$70 - 100k	\$3,913	\$3,899	-\$214	-5%	15.5%	15.2%	-0.3%	23%
>\$100k	\$15,669	\$15,230	-\$439	-3%	62.1%	62.6%	0.5%	48%
Single	\$1,109	\$1,079	-\$30	-3%	16.8%	17.0%	0.2%	12%
HofH	\$256	\$249	-\$7	-3%	3.9%	3.9%	0.0%	3%
MFJ	\$5,102	\$4,902	-\$200	-4%	77.3%	77.0%	-0.2%	84%
MFS	\$135	\$133	-\$2	-2%	2.0%	2.1%	0.0%	1%
0	\$49	\$45	-\$4	-8%	0.7%	0.7%	0.0%	2%
1	\$1,145	\$1,119	-\$25	-2%	17.3%	17.6%	0.3%	11%
2	\$2,246	\$2,206	-\$40	-2%	34.0%	34.7%	0.7%	17%
3	\$907	\$870	-\$37	-4%	13.7%	13.7%	-0.1%	16%
4	\$995	\$939	-\$56	-6%	15.1%	14.8%	-0.3%	24%
5	\$649	\$609	-\$40	-6%	9.8%	9.6%	-0.3%	17%
>=6	\$612	\$575	-\$37	-6%	9.3%	9.0%	-0.2%	15%
All	\$2,568	\$2,475	-\$93	-4%	100.0%	100.0%	0.0%	100.0%

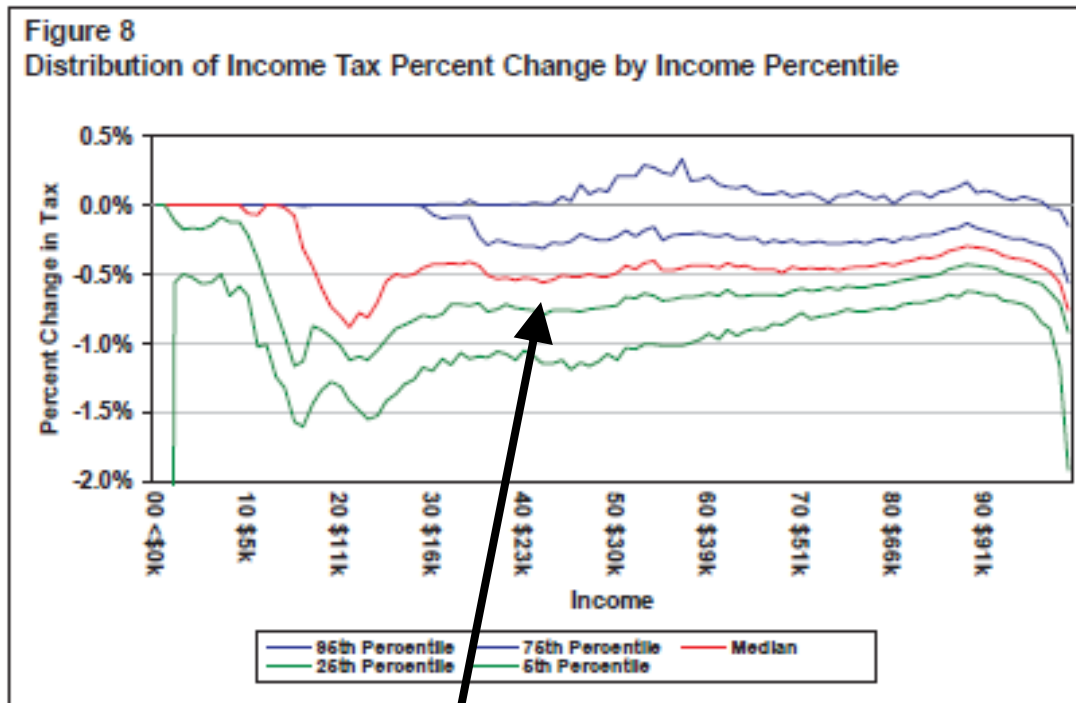
Taxpayers with Income
above \$100,000 pay
~62% of total tax but
received 48% of tax cut.

Taxpayers with Income
above \$100,000 pay a
slightly higher share of
overall liability.



Tax Simulation Model Information

Segmented Income Analysis



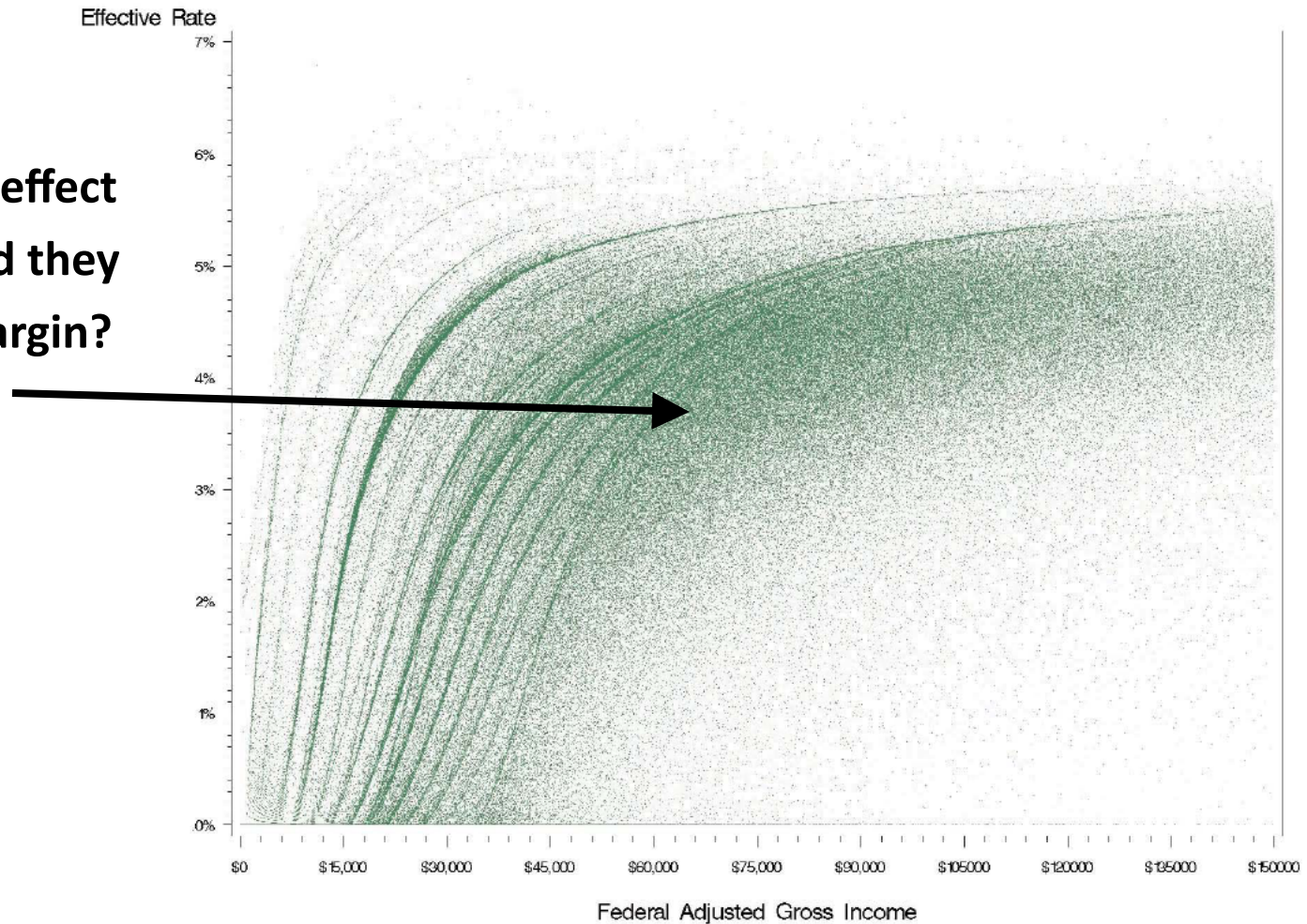
The Median Taxpayer within each income percentile had about a 0.5% tax cut



Tax Simulation Model Information

Effective Rate Changes

Figure 27
2008 Projected Effective Income Tax Rates Under the Graduated Rate System



What were prior effective rates and how did they change at the margin?



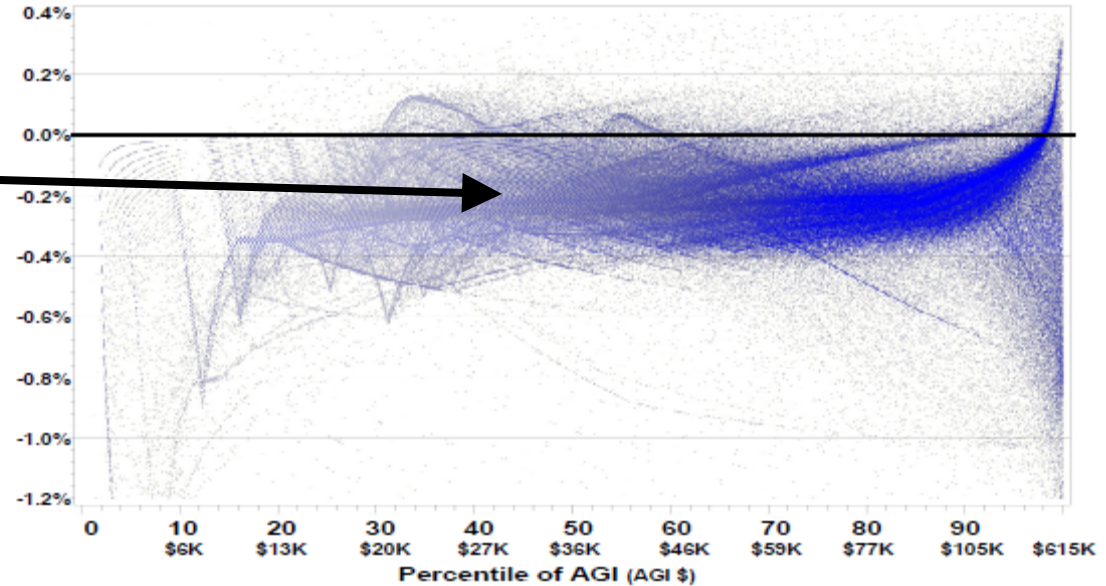
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Tax Simulation Model Information

Effective Rate Changes

**Most Taxpayers
paid less in taxes**

Chart 2
Effective Tax Rate Change, Tax Year 2005 to 2008, by Taxpayer & Income

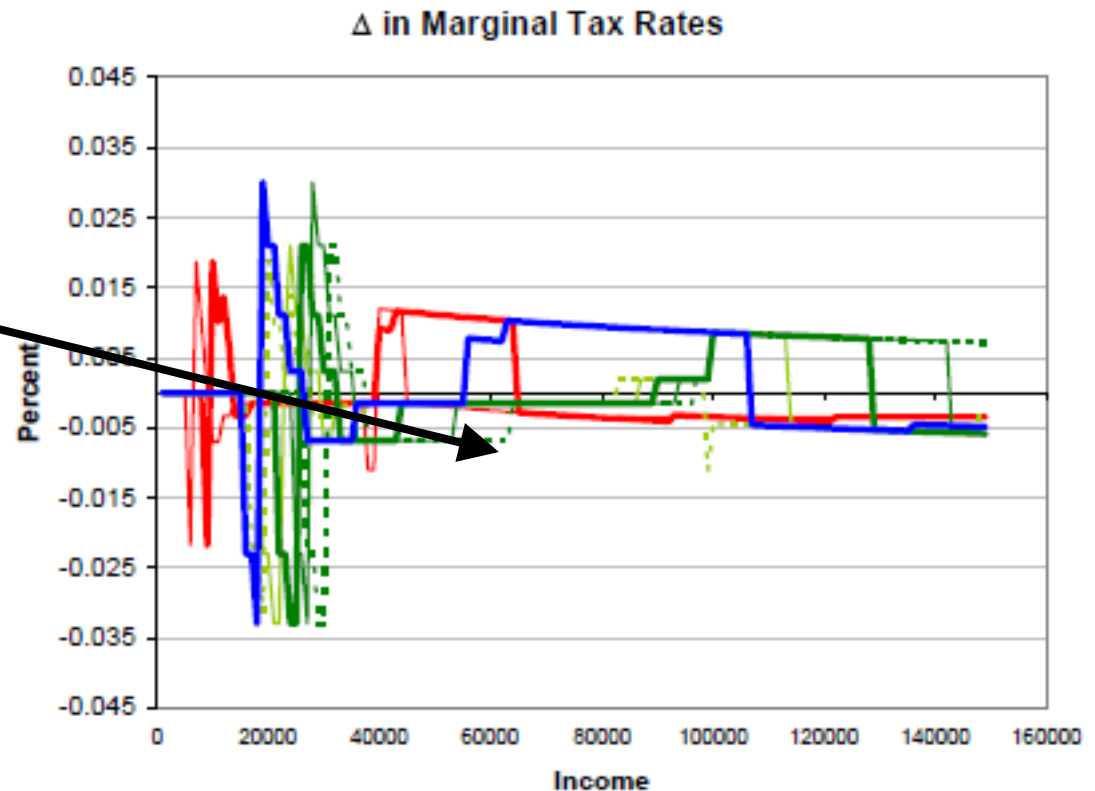


Tax Simulation Model Information

Effective Rate Changes

Most High Income Taxpayers
faced lower effective marginal
tax rates.

Middle Income Taxpayers
faced higher marginal rates
with credits phasing out



Tax Reform in Utah Retrospective

Intense Effort Required to Reform Taxes.

- It took a lot of resources and reallocation of resources to accomplish.
- It absorbed many public officials time for over 3 years.
- Analysis, specifically the Tax Simulation Model was key to success.
- Product of the Reform was a Single Rate System.
- It produced an individual tax cut of around \$190 million on \$2.5 billion.
- More progressive, larger share of the tax cut went to lower income.
- Expanded the Tax Base from ~\$38 billion to ~\$60 billion (2007).
- Lowered the statutory Tax Rate from 7% to 5%.
- Change in the Withholding Tables caused early confusion.
- Makes Utah more competitive, aligns statutory rate with marginal rate.



Tax Reform in Utah Retrospective

Why?

- Single rate shows propensity, if not promise, to not ‘soak the rich’.
- General trend in lower top marginal rates and fewer rate structures.
- Deductions and Exemptions disproportionately help the rich, conversion to tax credits allows for targeted incentives for activities to specific groups.
- Marginal Incentives matter more for behavioral changes than the overall level of taxation.
- This happened in the context of broader tax reform which changed sales taxes, corporate taxes, and other business taxes.
- Stabilizes Utah’s finances and leaves it competitively positioned relative to tax systems in other states.
- Current analysis confirms the accuracy of Simulation Model forecasts.

[David Stringfellow](#), Chief Economist, State of Utah - Office of the Utah State Auditor

