

# Sales Taxes Forecasting Essentials

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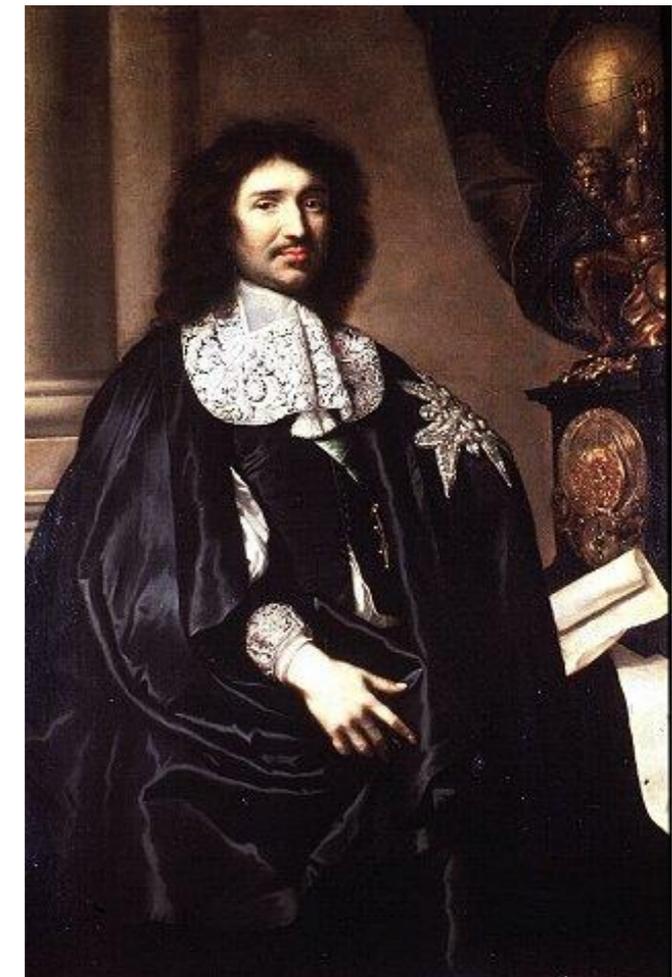
"The art of taxation consists in so plucking the goose as to obtain the largest amount of feathers with the least possible amount of hissing"

Jean Baptiste Colbert, French Comptroller, 1665-83

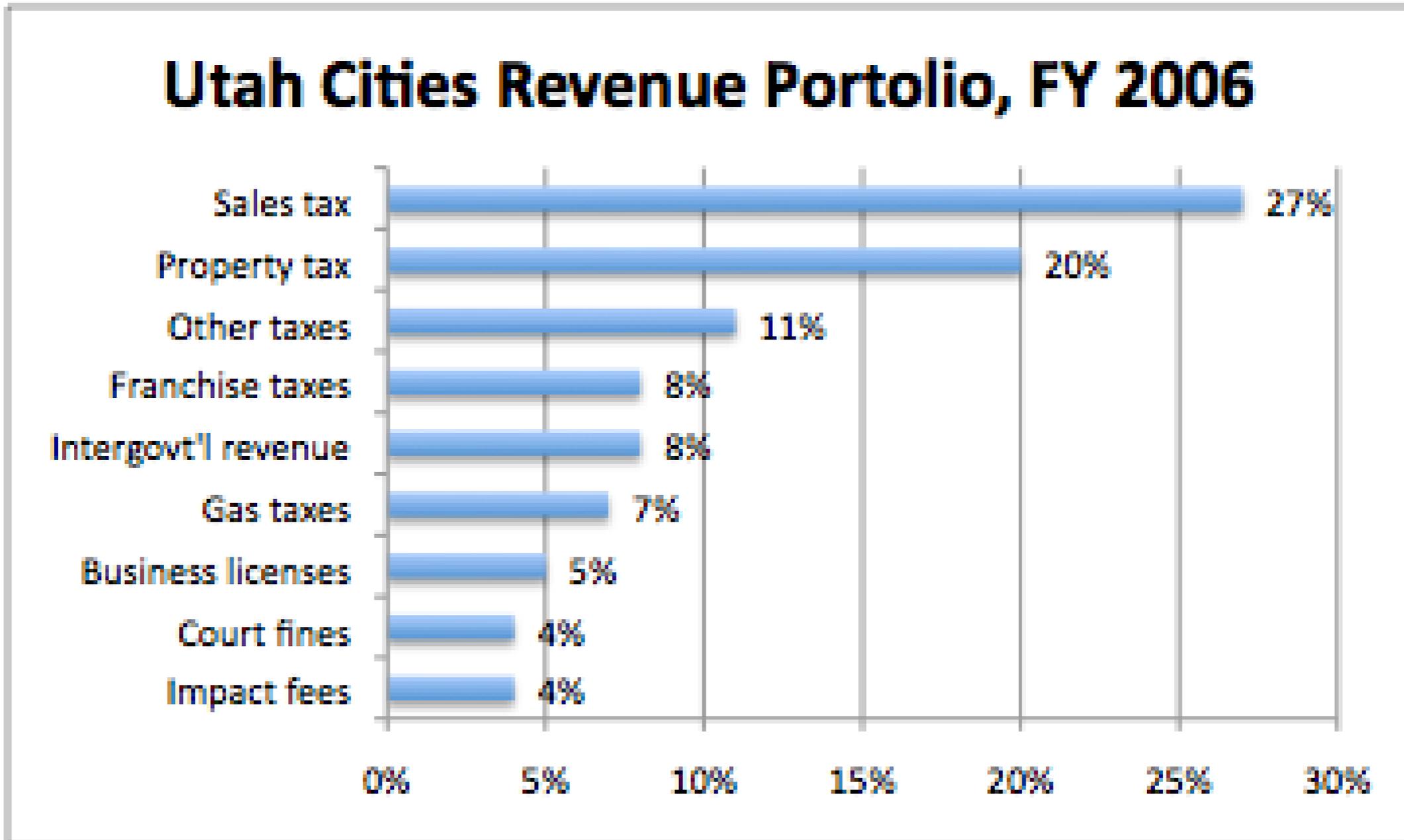
### Which tax do you oppose the least?

Sales tax	28%
Property tax	24%
Gas tax	21%
Income tax	14%
None	7%
All	2%
Don't Know	4%

Source: Dan Jones & Associates,  $\pm$  4%, 2005



# Sales Taxes-Cities #1 Revenue Source

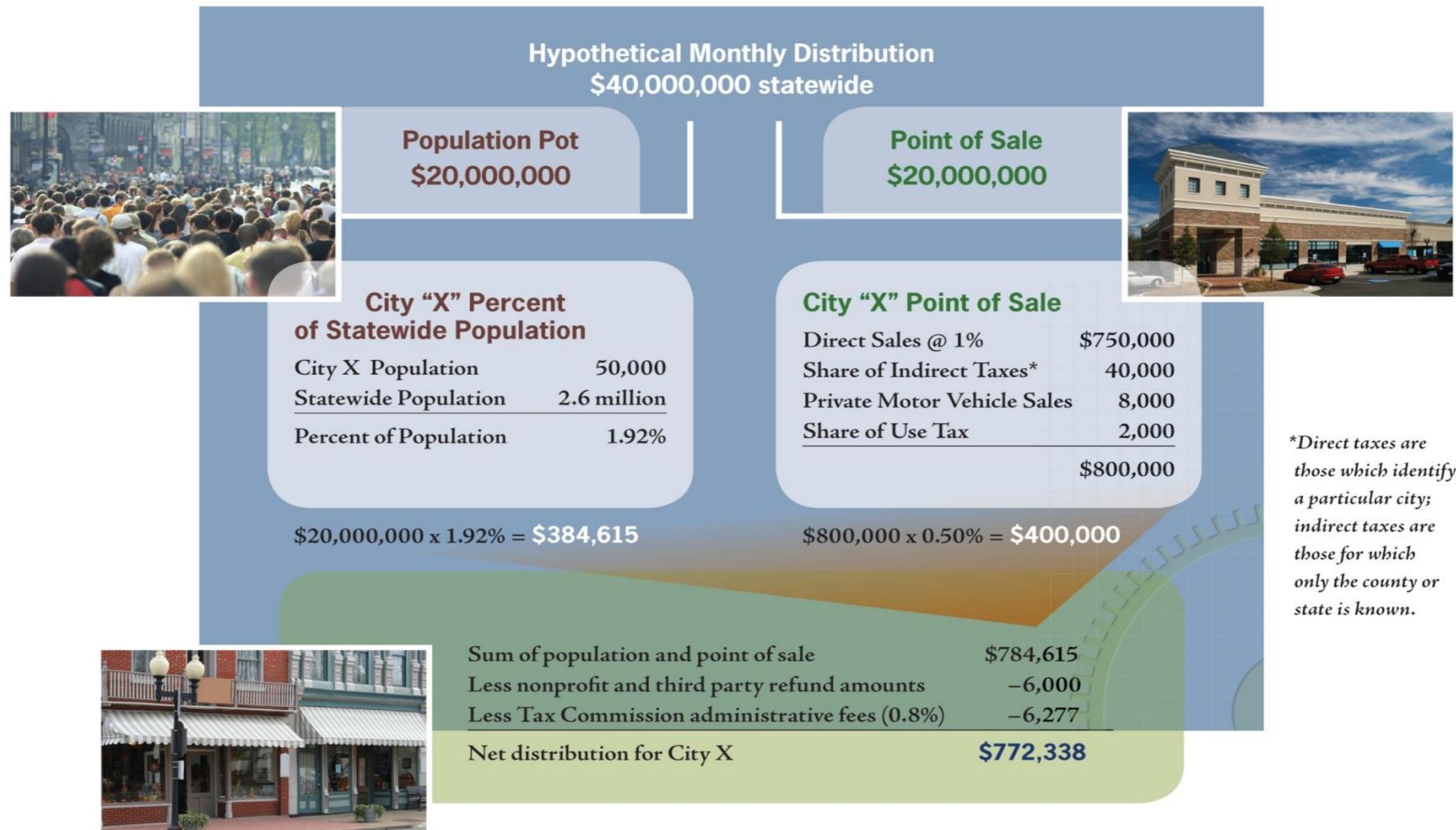


# How is sales tax distributed?

*Sandy pushed 1983 (50/50)...communities change*

Figure 2

How is Sales Tax Distributed?



# Local Sales Tax History

<b>Local Option Sales and Use Tax</b>						
<i>Fiscal Year</i>	<i>Tax Collections<sup>1,2,3</sup></i>	<i>Real Tax Collections<sup>4</sup></i>	<i>Real Per Capita</i>	<i>Tax Rate %<sup>5</sup></i>	<i>Derived Taxable Sales</i>	<i>Percent Change from prior year</i>
1960	3,134,224	10,752,055	12.36	0.5000	626,844,800	
1961	4,442,805	15,017,086	16.69	0.5000	888,561,000	41.8%
1962	6,157,039	20,590,956	22.00	0.5000	1,231,407,800	38.6%
1963	7,553,645	24,967,976	26.06	0.5000	1,510,729,000	22.7%
1964	7,866,384	25,679,164	26.36	0.5000	1,573,276,800	4.1%
1965	8,184,030	26,367,492	26.96	0.5000	1,636,806,000	4.0%
1966	8,730,728	27,691,689	27.94	0.5000	1,746,145,600	6.7%
1967	9,085,848	27,981,567	27.73	0.5000	1,817,169,600	4.1%
1968	9,491,961	28,440,333	27.91	0.5000	1,898,392,200	4.5%
1969	10,589,553	30,437,039	29.58	0.5000	2,117,910,600	11.6%
1970	11,174,642	30,462,450	29.09	0.5000	2,234,928,400	5.5%
1971	12,402,057	31,929,776	29.95	0.5000	2,480,411,400	11.0%
1972	14,369,001	35,493,621	32.23	0.5000	2,873,800,200	15.9%
1973	16,604,886	39,716,690	34.99	0.5000	3,320,977,200	15.6%
1974	19,036,945	42,851,874	36.66	0.5000	3,807,389,000	14.6%
1975	21,735,782	44,073,907	36.82	0.5000	4,347,156,400	14.2%
1976	33,333,154	61,928,758	50.19	<b>0.6875</b>	4,848,458,764	11.5%
1977	42,148,484	74,031,295	58.20	0.7500	5,619,797,867	15.9%
1978	49,177,918	81,129,367	61.65	0.7500	6,557,055,733	16.7%
1979	55,949,450	85,757,236	62.88	0.7500	7,459,926,667	13.8%
1980	62,736,929	86,434,345	61.04	0.7500	8,364,923,867	12.1%
1981	67,002,776	81,330,499	55.18	0.7500	8,933,703,467	6.8%
1982	75,053,672	82,537,029	54.48	0.7500	10,007,156,267	12.0%
1983	75,552,049	78,265,244	50.23	0.7500	10,073,606,533	0.7%
1984	104,750,161	105,188,446	65.95	<b>0.8438</b>	12,414,833,896	23.2%
1985	107,977,933	103,891,533	64.05	0.8750	12,340,335,200	-0.6%
1986	106,596,224	99,067,123	60.30	0.8750	12,182,425,600	-1.3%
1987	107,965,991	98,426,794	59.19	<b>0.8985</b>	12,016,582,654	-1.4%
1988	107,911,328	94,978,432	56.60	0.9063	11,907,456,883	-0.9%
1989	117,229,769	99,116,271	58.65	0.9063	12,935,698,648	8.6%
1990	127,393,793	102,785,283	60.25	<b>0.9297</b>	13,702,861,768	5.9%
1991	147,184,955	112,648,731	65.14	1.0000	14,718,495,500	7.4%
1992	157,949,323	115,997,055	65.14	1.0000	15,794,932,300	7.3%
1993	173,142,246	123,401,256	67.13	1.0000	17,314,224,600	9.6%
1994	188,542,186	130,501,600	69.07	1.0000	18,854,218,600	8.9%
1995	212,640,426	143,457,869	73.69	1.0000	21,264,042,600	12.8%
1996	225,576,867	148,032,506	74.19	1.0000	22,557,686,700	6.1%
1997	258,148,104	164,574,045	80.56	1.0000	25,814,810,400	14.4%
1998	263,504,219	164,151,515	78.19	1.0000	26,350,421,900	2.1%
1999	284,525,922	174,546,857	81.50	1.0000	28,452,592,200	8.0%
2000	301,728,683	181,127,774	82.59	1.0000	30,172,868,300	6.0%
2001	314,336,985	182,550,637	81.26	1.0000	31,433,698,500	4.2%
2002	317,978,847	179,606,786	78.41	1.0000	31,797,884,700	1.2%
2003	325,159,963	180,778,334	77.53	1.0000	32,515,996,300	2.3%
2004	331,554,140	180,192,467	75.95	1.0000	33,155,414,000	2.0%
2005	361,096,500	191,149,058	78.65	1.0000	36,109,650,000	8.9%
2006	415,904,148	212,992,906	85.00	1.0000	41,590,414,800	15.2%
2007	463,310,356	229,873,657	89.23	1.0000	46,331,035,600	11.4%
2008	469,428,948	226,410,401	85.89	1.0000	46,942,894,800	1.3%
2009	425,127,553	197,506,842	73.39	1.0000	42,512,755,300	-9.4%
2010	398,888,385	185,919,480	68.06	1.0000	39,888,838,500	-6.2%
2011	415,441,413	190,482,078	68.65	1.0000	41,544,141,300	4.1%
2012	441,463,981	196,259,422	69.75	1.0000	44,146,398,100	6.3%
2013	474,430,572	206,638,924	72.44	1.0000	47,443,057,200	7.5%
2014	496,435,229	213,101,658	73.55	1.0000	49,643,522,900	4.6%

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Great  
recession

# Forecasting Methods

1. The past is a reliable gauge for the future  
(last 3 year average at 50%, last 3 month average at 50%)
2. Statewide forecast of taxable sales
3. Survey top 5 local businesses
4. Average the three above
5. County wage growth + local new residential construction growth (divide by 10) + U.S. consumer sentiment growth
6. Build your own econometric model

# Check Your Sector Stats

409	Draper	PRIOR-PERIOD PAYMENTS & REFUNDS		\$5,277,746	
410	Farmington	MINING, QUARRYING, & OIL & GAS EXTRACTION(210000-219999)	less than	\$20,000	0.0%
411	Farmington	UTILITIES(220000-229999)	less than	\$16,250,000	6.8%
412	Farmington	CONSTRUCTION(230000-239999)		\$4,186,309	1.8%
413	Farmington	MANUFACTURING(310000-339999)		\$5,714,554	2.4%
414	Farmington	WHOLESALE TRADE-DURABLE GOODS(423000-423999)		\$8,593,167	3.6%
415	Farmington	WHOLESALE TRADE-NONDURABLE GOODS(424000-424999)		\$471,063	0.2%
416	Farmington	WHOLESALE TRADE-ELECTRONIC MARKETS(425000-425999)	less than	\$200,000	0.1%
417	Farmington	RETAIL-MISCELLANEOUS RETAIL TRADE		\$10,006,667	4.2%
418	Farmington	RETAIL-MOTOR VEHICLE & PARTS DEALERS(441000-441999)		\$4,320,104	1.8%
419	Farmington	RETAIL-FURNITURE & HOME FURNISHINGS STORES(442000-442999)		\$1,350,014	0.6%
420	Farmington	RETAIL-ELECTRONICS & APPLIANCE STORES(443000-443999)		\$440,408	0.2%
421	Farmington	RETAIL-BUILD. MATERIAL, GARDEN EQUIP. & SUPPLIES DEALERS(444000-444999)		\$428,440	0.2%
422	Farmington	RETAIL-FOOD & BEVERAGE STORES(445000-445999)		\$20,067,605	8.4%
423	Farmington	RETAIL-HEALTH & PERSONAL CARE STORES(446000-446999)		\$1,023,454	0.4%
424	Farmington	RETAIL-GASOLINE STATIONS(447000-447999)	less than	\$3,250,000	1.4%
425	Farmington	RETAIL-CLOTHING & CLOTHING ACCESSORIES STORES(448000-448999)		\$32,817,222	13.7%
426	Farmington	RETAIL-SPORTING GOODS, HOBBY, MUSIC,& BOOK STORES(451000-451999)		\$29,810,614	12.5%
427	Farmington	RETAIL-GENERAL MERCHANDISE STORES(452000-452999)		\$936,568	0.4%
428	Farmington	NONSTORE RETAILERS(454000-454999)		\$1,808,269	0.8%
429	Farmington	TRANSPORTATION & WAREHOUSING(480000-499999)	less than	\$70,000	0.0%
430	Farmington	INFORMATION(510000-519999)		\$14,009,953	5.9%
431	Farmington	FINANCE & INSURANCE(520000-529999)		\$673,752	0.3%
432	Farmington	REAL ESTATE, RENTAL, & LEASING(530000-539999)		\$1,817,034	0.8%
433	Farmington	PROFESSIONAL, SCIENTIFIC, & TECHNICAL SERVICES(540000-549999)		\$1,494,481	0.6%
434	Farmington	MANAGEMENT OF COMPANIES & ENTERPRISES(550000-559999)	less than	\$200,000	0.1%
435	Farmington	ADMIN. & SUPPORT & WASTE MANAG.& REMED. SERVICES(560000-569999)		\$307,337	0.1%
436	Farmington	EDUCATIONAL SERVICES(610000-619999)		\$48,395	0.0%
437	Farmington	HEALTH CARE & SOCIAL ASSISTANCE(620000-629999)		\$751,013	0.3%
438	Farmington	ARTS, ENTERTAINMENT,AND RECREATION(710000-719999)		\$47,462,783	19.9%
439	Farmington	ACCOMMODATION(721000-721999)	less than	\$9,000	0.0%
440	Farmington	FOOD SERVICES & DRINKING PLACES(722000-722999)		\$15,494,474	6.5%
441	Farmington	OTHER SERVICES-EXECPT PUBLIC ADMINISTRATION(810000-819999)		\$4,765,823	2.0%
442	Farmington	PUBLIC ADMINISTRATION(920000-929999)	less than	\$150,000	0.1%
443	Farmington	PRIVATE MOTOR VEHICLE SALES	less than	\$6,250,000	2.6%
444	Farmington	SPECIAL EVENT SALES		\$348,207	0.1%
445	Farmington	OCCASIONAL/NONCLASSIFIABLE		\$1,710,765	0.7%
446	Farmington	PRIOR-PERIOD PAYMENTS & REFUNDS		\$1,842,141	0.8%
447				\$239,099,616	100.0%
448	Heber	AGRICULTURE, FORESTRY, FISHING & HUNTING(110000-119999)	less than	\$200,000	73.6%
449	Heber	MINING, QUARRYING, & OIL & GAS EXTRACTION(210000-219999)	less than	\$25,000	


<http://tax.utah.gov/econstats/sales/yearly>

# Forecasting Sales Taxes

- Gross Domestic Product =
- Consumption (C)
- Investment (I)
- Government (G)
- Net Exports (X)

# Product Sales Taxes

Product =

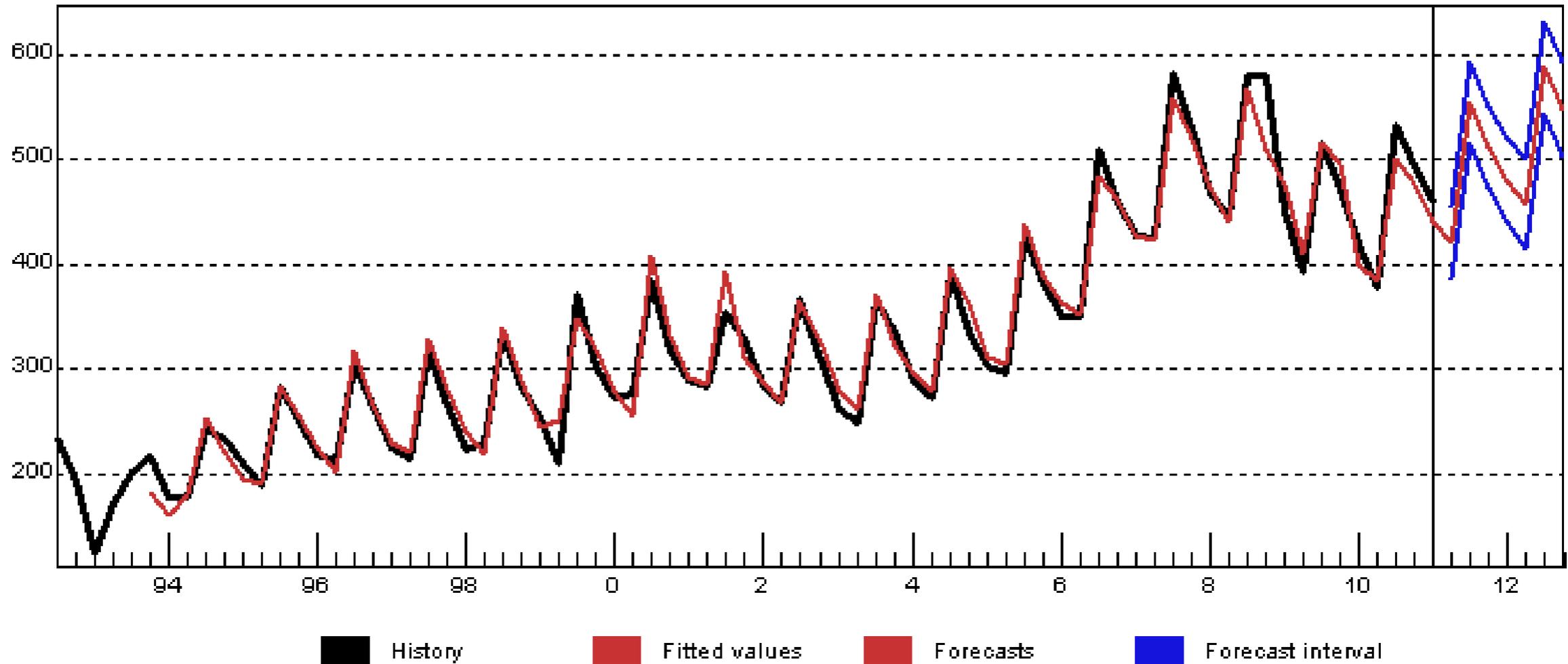
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- Gross Domestic Product =
- Consumption (C) =
  - 1) wages
  - 2) prices
  - 3) tastes
  - 4) new construction values (building & garden stores, furniture stores, construction, wholesale lumber)
  - 5) consumer sentiment (motor vehicle sales)
- Investment (I) =
  - 1) U.S. business fixed investment purchases
  - 2) new construction values

# Farmington Sales Tax Econometric Model

- Sales taxes depend on:
  - Utah wages (after savings)
  - Utah unemployment rate
  - Lagoon third quarter boost
  - Sales taxes lagged one quarter

## FARMCITY - Farmington Stax Dist. (000)



### Forecast Report for FARMCITY

#### Model Details

##### Dynamic regression

Regression(4 regressors, 1 lagged errors)

Term	Coefficient	Normalized	Elasticity	Std. Error	t-Statistic	Percentile
DWAGE	0.0202	0.4225	0.4803	0.003948	5.117	1
Q3DMY	124.3	0.5063	0.08898	10.75	11.57	1
UTUNEMP	-5.098	-0.05819	-0.06561	2.122	-2.402	0.9808
FARMCITY[-1]	0.5086	0.5096	0.5021	0.08302	6.127	1
_AUTO[- 4]	0.4621			0.1018	4.538	1

#### Within-Sample Statistics

Sample size	70	No. parameters	5
Mean	338.58	Std. deviation	106.04
R-square	0.97	Adj. R-square	0.97
Durbin-Watson	2.01	Ljung-Box(18)	14.4 P=0.29
Forecast error	18.24		20.45
MAPE	4.02		17.57
MAD	13.09		

# Farmington Long-term Forecasts from 2011

	Model Forecast	Actual
FY 2012	\$ 2,549,000	\$2,380,247
FY 2013	2,900,000	2,716,137
FY 2014	3,179,000	3,087,881
FY 2015	3,329,100	3,512,000