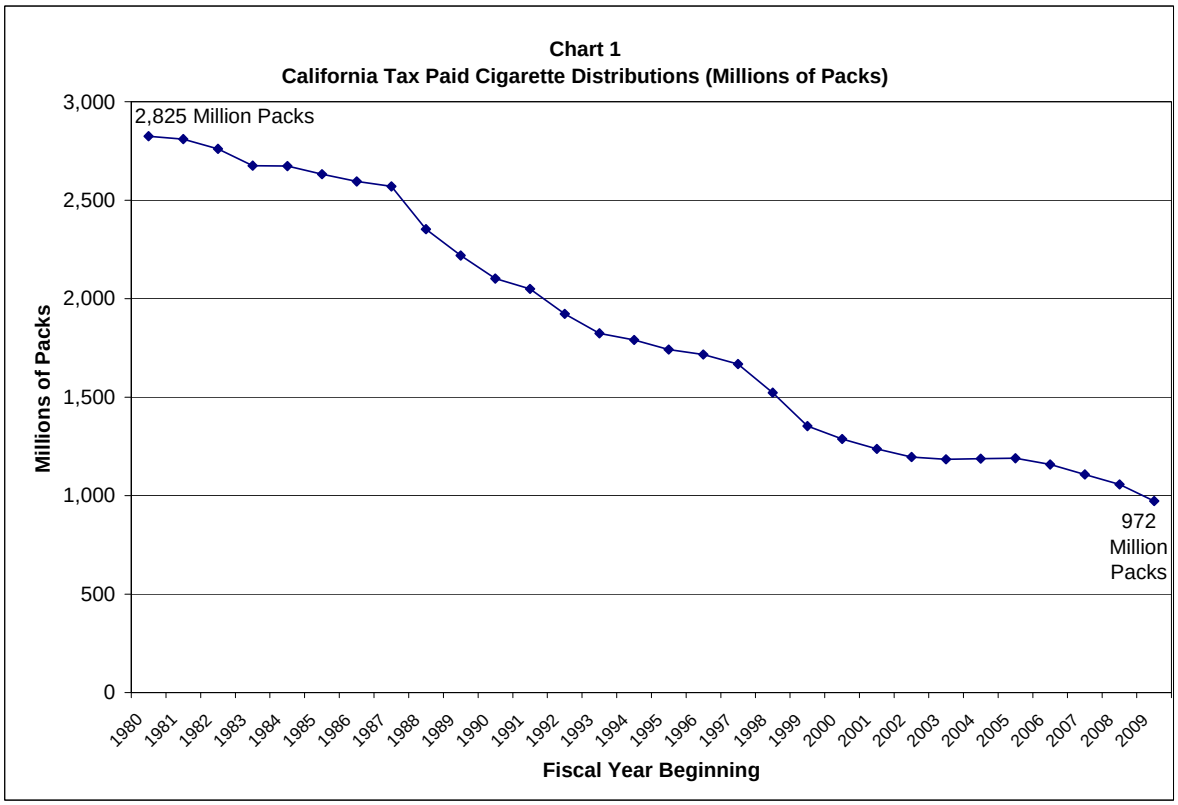
Cigarette Taxes, Prices, and Sales

Declining Cigarette Sales

California tax-paid cigarette distributions peaked in 1980, and have declined considerably over the past 30 years as many smokers have quit smoking or smoke fewer cigarettes and proportionately smaller shares of the population have started smoking. As shown in Chart 1, California tax-paid distributions fell from 2,825 million packs in fiscal year 1980-81 to 972 million packs by 2009-10, a 65.6 percent decline.



Since fiscal year 1980-81 tax-paid cigarette distributions have declined an average of 3.5 percent per year. In terms of packs, distributions have declined an average of 59 million packs per year. (See the Appendix for data on tax-paid cigarette distributions, California and federal excise taxes, and retail prices for fiscal years 1959-60 through 2009-10.)

Possible Reasons for the Declines

There are several possible reasons for this trend. Health concerns are certainly a major reason for the decline. Surveys indicate that about 13.1 percent of California adults smoked cigarettes in 2009,

down from 26.7 percent in 1985.[1] Surveys indicate that smokers, on average, are smoking fewer cigarettes than they did 30 years ago. Smoking restrictions in public and private indoor and outdoor locations have become commonplace today, discouraging smokers from consuming as many cigarettes as they did in 1980.

Tax and Price Impacts on Distributions

While health concerns are important, there are several other factors beside health concerns and smoking restrictions that share responsibility for part of the downward trend in tax-paid cigarette distributions. One of these is higher prices. For cigarettes and nearly all goods there is an inverse relationship between prices and sales. Higher prices almost always result in lower sales if there are no other major changes in government policy, consumer preferences or other factors. Increases in manufacturers' prices generally discourage people from smoking as many cigarettes as they would have prior to the price increase. Higher tax rates, which are usually passed on to consumers as higher prices, tend to have a similar impact as increases in manufacturers' prices.

Cigarette tax evasion is another possible reason for sales declines. In 2009 federal and state taxes were about 37 percent of the average retail price of cigarettes. Cigarette retailers and smokers certainly have incentives to secure untaxed supplies of cigarettes since they could reduce their cigarette costs by up to 37 percent by doing so. Our most recent set of cigarette evasion estimates indicate that over 200 million packs per year are sold as contraband products.[2]

Declines Variable by Fiscal Year

As shown in Chart 2, declines in cigarette distributions have been quite variable over the past 30 years. In a couple years there were small increases in tax-paid distributions, running counter to the long-term trend, while in other years there were large declines. Changes in tax-paid distributions by fiscal year have ranged from a high of 3 million packs more than the previous fiscal year in both fiscal years 2004-05 and 2005-06 to a low of 218 million fewer packs in fiscal year 1988-89. In the recently completed fiscal year of 2009-10 tax-paid distributions declined 85 million packs, the largest decrease of the past decade. California tax-paid distributions of cigarettes declined 8.1 percent in fiscal year 2009-10.

The 2009-10 Decline

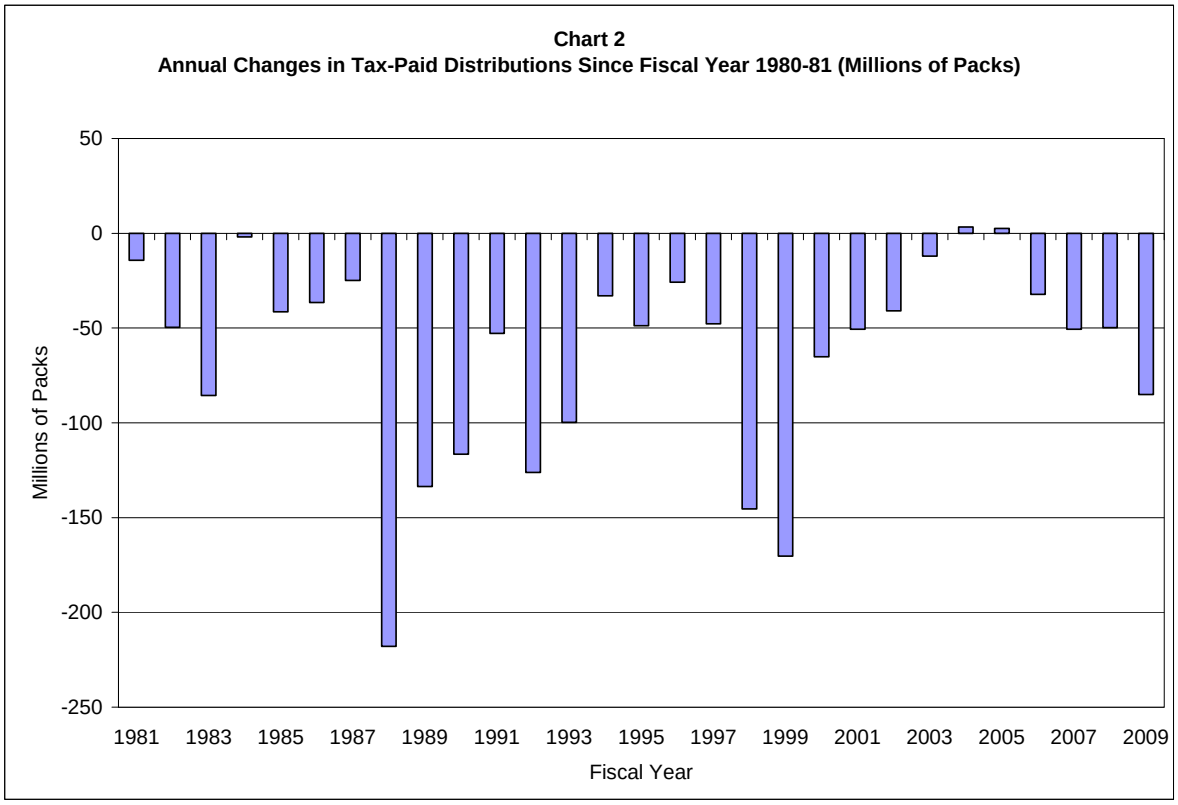
Why did California tax-paid distributions fall so sharply in fiscal year 2009-10? Health concerns have been evident for many years, and smoking restrictions have been in place for quite some time also. Health concerns and smoking restrictions have come about gradually, taking years to have impacts. There were no new major health studies issued in 2009 that would likely lead to such a development. To answer such questions economists usually look to prices as a most likely cause. Cigarette prices increased sharply in fiscal year 2009-10. U.S. Bureau of labor Statistics (BLS) data indicate that the U.S. consumer price index (CPI) for cigarettes rose 21.8 percent in fiscal year 2009-10.

CHIP Tax Reduces Cigarette Sales

This finding leads to a second question: why did cigarette prices increase so much? The increase seems, at first, perplexing at a time when the overall U.S. CPI rose only 1.0 percent. The answer to this question is found in excise taxes. Manufacturers and importers of cigarettes are taxed by both the U.S. and California governments. The California cigarette excise tax rate has not changed since January 1, 1999. However, there was a large increase in cigarette taxes just prior to the start of fiscal year 2009-10. In February 2009 H.R. 2 was signed into law by the President. This bill funds

[1] Sources: *California Tobacco Control Update 2009:20 Years of Tobacco Control in California*, California Department of Public Health, California Tobacco Control program, 2009; "First 5 losing funding," *Inland Valley Daily Bulletin*, July 7, 2010.
[2] See June 27, 2007 news release, http://www.boe.ca.gov/news/pdf/37-Y.pdf

the federal Children's Health Insurance Program (CHIP) with a major source of revenues coming from increases in federal excise tax rates on cigarettes and other tobacco products. Under the law the federal cigarette tax rate increased $0.62 per pack, from $0.39 per pack to $1.01 per pack on April 1, 2009. Generally most or all of such tax increases are passed on to consumers as higher prices.



At the time the CHIP tax took effect, the tax increase boosted California retail cigarette prices by 14.4 percent compared to November 2008 prices. Cigarette manufacturers and importers raised 2009 prices by an additional 4.2 percent. The combined price increase from federal excise taxes and manufacturers' price increases was an 18.6 percent increase over the November 2008 average price. As a result, California cigarette prices averaged $5.09 per pack in November 2009.[3]

Impacts of Large Tax or Price Increases in History Selected

While manufacturers' prices increase frequently, they tend to be relatively small in most years. However, the CHIP increase was relatively large. The CHIP tax increase was the largest federal cigarette tax increase ever. Was the associated change in tax-paid distributions in fiscal year 2009-10 unprecedented? Or had we seen similar declines in tax-paid distributions in previous years?

To answer this question, we analyzed changes in tax-paid distributions and prices using data going back to fiscal year 1959-60, when the current cigarette excise tax was established. If federal or state excise taxes were raised during a fiscal year, we prorated the increase based on the proportion of months the tax increase was in effect for the fiscal year. To distinguish between tax increases that were large enough to make a noticeable difference in the trends and those that were not, we grouped the data into two groups. The first group has only those fiscal years with price increases of ten

[3] Prices on November 1 in each state are surveyed every year in *The Tax Burden on Tobacco Historical Compilation 2009*, Orzechowski and Walker, 2010. These data differ from the U.S. Bureau of Labor Statistics price data cited earlier, which are tabulated monthly and are for the U.S. as a whole.

percent or more. Ten percent was chosen arbitrarily as sufficient change to warrant a noticeably large change in tax-paid distributions. Changes in prices did not consider the root cause. Changes could result from increased federal taxes, increased state taxes, increased manufacturers' prices, or a combination of the three sources.

We found ten fiscal years with price increases of more than ten percent in the 50 years of data. California tax-paid cigarette distributions, state and federal excise tax rates (prorated for the fiscal year if applicable) and average retail prices (with tax increases assumed to be passed on to consumers) are shown for these selected fiscal years in Table 1.

Declines Closely Associated With Large Tax or Price Increases

In every fiscal year except 1977 tax-paid distributions decreases are associated with retail price increases. In seven of the ten fiscal years there were California or federal excise tax increases. However, there were also manufactures' price increases in some of these years. In late 1998 the Master Settlement Agreement (MSA) resulted in large manufactures' prices increases, over $0.50 per pack according to the major cigarette manufactures. There was also a $0.50 per pack tax increase in California that resulted from Proposition 10, which was effective January 1, 1999.

Table 1
California Tax-Paid Cigarette Distributions, Federal and State Excise Taxes, and Average Retail Prices: Years With Double-Digit Price or Tax Increases

Fiscal Year Begin-ning	California Tax-Paid Cigarette Distri-butions (Millions of Packs)	Change From Previous Fiscal Year (Millions of Packs)	Percent Change in Packs	Increases in California or Federal Tax Rates?	California Excise Tax Rate (Dollars per Pack)[1/]	Federal Excise Tax Rate (Dollars per Pack)[1/]	Average California Retail Price (Dollars per Pack)[1/]	Percent Change in Retail Price
1967	2,383	-190	-7.4%	California	$0.09	$0.08	$0.41	58.9%
1977	2,774	46	1.7%		$0.10	$0.08	$0.59	19.8%
1982	2,761	-50	-1.8%	Federal	$0.10	$0.12	$0.89	22.1%
1987	2,570	-25	-1.0%		$0.10	$0.16	$1.17	13.0%
1988	2,353	-218	-8.5%	California	$0.23	$0.16	$1.39	18.3%
1989	2,219	-134	-5.7%		$0.35	$0.16	$1.64	17.9%
1990	2,102	-116	-5.2%	Federal	$0.35	$0.18	$1.89	15.3%
1998	1,523	-145	-8.7%	California	$0.62	$0.24	$2.79	34.3%
1999	1,353	-170	-11.2%	Federal	$0.87	$0.29	$3.56	27.6%
2009	972	-85	-8.1%	Federal	$0.87	$1.01	$5.09	14.4%

1/ Taxes are assumed to be passed on to consumers. Tax rates and prices are prorated for the portions of the fiscal year in which they are in effect.

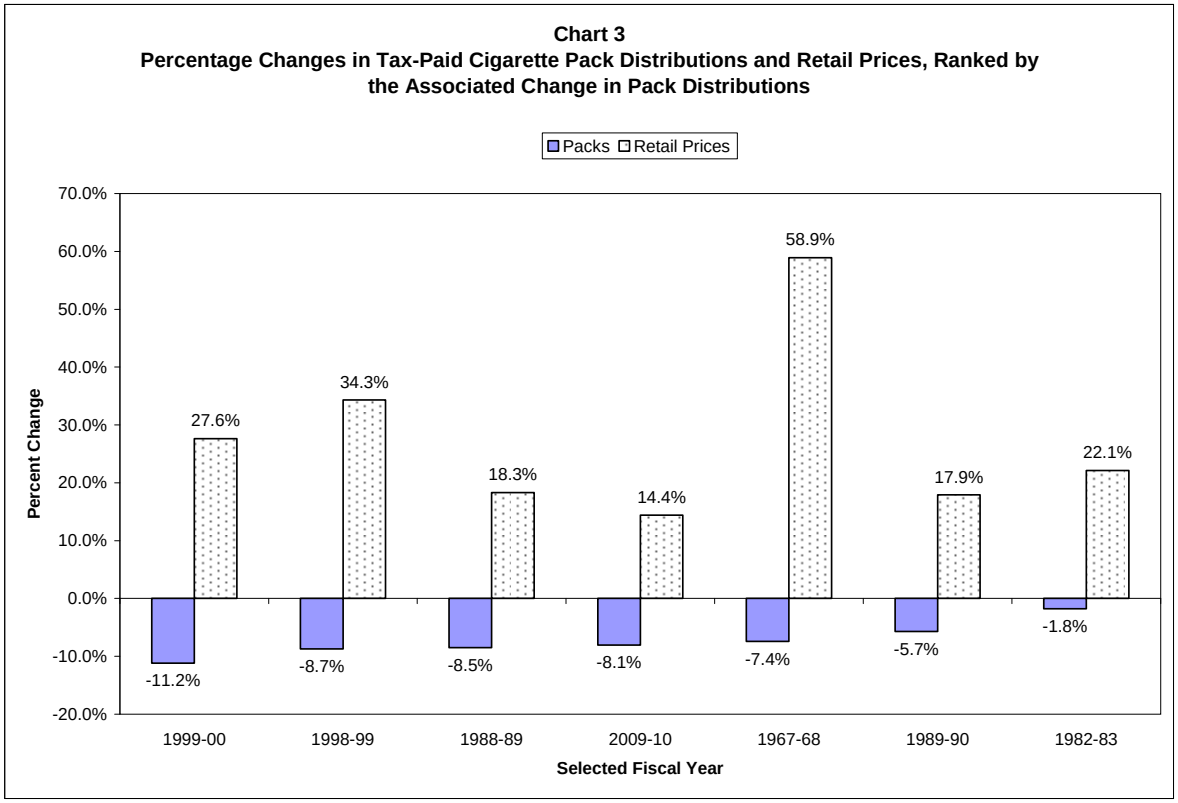
Selected Fiscal Years' Cigarette Distributions Declines Ranked

Using the data in Table 1, we selected the seven fiscal years with either California or federal tax increases and ranked them from largest to smallest decreases in tax-paid distributions. (We included fiscal year 2009-10 even though the federal CHIP tax increase occurred in the prior fiscal year. Since the tax increase was so late in the fiscal year (April 1, 2009) most of the impacts were seen in fiscal year 2009-10 instead of 2008-09.) Chart 3 shows changes in average cigarette prices and associated changes in tax-paid distributions.

Fiscal Year 2009-10 Decline Typical

Every year with a cigarette price increase of more than ten percent which also had federal or state excise tax increases had an associated decline in tax-paid distributions. With the exception of fiscal year 1982-83, every other fiscal year had much larger percentage tax-paid distribution decreases

than the 3.5 percent average decline of the past 30 years. The declines ranged from a high of 11.2 percent for fiscal year 1999-00 (associated with a 27.6 percent price increase) to a lowest decline of 1.8 percent in 1982-83 (associated with a 22.1 percent increase in the price). The 2009 federal tax increase and its associated 8.1 percent decline were in the middle of these selected ranked years.



Related Responses to Large Price Increases Unknown

While the data clearly indicate that declines in tax-paid cigarette distributions are associated with large tax and price increases, we know much less about other related responses, both recently and in the past. For example portions of these decreases in tax-paid distributions could be associated with increases in tax evasion. Contraband cigarettes could be purchased by smokers in the place cigarettes that were formerly sold legally. Previous research indicates that typically about 75 percent of declines tax-paid cigarette distributions are from fewer smokers smoking fewer cigarettes and about 25 percent is from increased evasion.[4] However, most of this research is for increases in state excise taxes, not the federal excise tax. Evasion of federal taxes is more difficult than evasion of state taxes since one possible evasion channel, the movement of cigarettes from low-taxed states to high-taxed states, is not operative with a federal tax increase.

Another possible explanation for part of the decline in cigarette distributions is consumers switching to substitute products. Anecdotal evidence suggests that sales of roll-your-own tobacco, little cigars, and smokeless tobacco have increased within the past year or so. Some of the increase could be a substitution of these products for cigarettes. Some tobacco product manufacturers have responded to the federal CHIP tax increase by reformulating or relabeling their products in ways to minimize the amount taxed. For example, little cigars (which could be considered cigarettes for tax purposes,

[4] See related references in a link to technical documentation of the tax evasion estimates of the June 27, 2007 press release cited earlier. The documentation, *Estimates of California Cigarette Excise Tax Revenue Losses* is available upon request.

depending on how they are made) could become “filtered cigars” (and taxed as cigars instead of cigarettes) by adding more weight to the product.

Large Price Increases Related to Declines in Distributions

In conclusion, the fiscal year 2009-10 decline in tax-paid distributions associated with the federal CHIP tax increase was typical when compared to other fiscal years with large tax increases. As a group, smokers do respond to higher prices, even though smoking is an addiction. However, some of the decline in tax-paid distributions could be caused by increased tax evasion and substitution of other tobacco products. We do not know to what extent the decline is associated with less smoking and to what extent cigarette evasion or product substitution of other tobacco products may have increased in response to the tax increase. To our knowledge, increases in Federal cigarette tax evasion or product substitution associated with the CHIP increase have not been estimated.

Appendix
California Tax-Paid Cigarette Distributions, State and Federal Excise Taxes, and Average Retail Prices

Fiscal Year Beginning	California Tax-Paid Cigarette Distributions (Millions of Packs)	Change From Previous Fiscal Year (Millions of Packs)	Percent Change in Packs	California Excise Tax Rate (Dollars per Pack) 1/	Federal Excise Tax Rate (Dollars per Pack) 1/	Average California Retail Price (Dollars per Pack) 1/	Percent Change in Retail Price
1959	2,085	n.a.	n.a.	$0.03	$0.08	$0.25	n.a.
1960	2,258	173	8.3%	$0.03	$0.08	$0.25	-0.8%
1961	2,320	62	2.8%	$0.03	$0.08	$0.25	-0.8%
1962	2,409	89	3.9%	$0.03	$0.08	$0.25	1.2%
1963	2,433	24	1.0%	$0.03	$0.08	$0.26	0.8%
1964	2,534	101	4.1%	$0.03	$0.08	$0.25	-0.8%
1965	2,547	13	0.5%	$0.03	$0.08	$0.26	0.8%
1966	2,573	26	1.0%	$0.03	$0.08	$0.26	2.0%
1967	2,383	-190	-7.4%	$0.09	$0.08	$0.41	58.9%
1968	2,409	26	1.1%	$0.10	$0.08	$0.37	-11.4%
1969	2,393	-16	-0.7%	$0.10	$0.08	$0.39	6.0%
1970	2,424	32	1.3%	$0.10	$0.08	$0.40	2.3%
1971	2,505	81	3.3%	$0.10	$0.08	$0.40	0.5%
1972	2,553	47	1.9%	$0.10	$0.08	$0.40	0.0%
1973	2,620	67	2.6%	$0.10	$0.08	$0.42	5.0%
1974	2,664	45	1.7%	$0.10	$0.08	$0.45	7.4%
1975	2,722	57	2.1%	$0.10	$0.08	$0.48	7.3%
1976	2,728	7	0.2%	$0.10	$0.08	$0.49	1.4%
1977	2,774	46	1.7%	$0.10	$0.08	$0.59	19.8%
1978	2,730	-44	-1.6%	$0.10	$0.08	$0.60	2.4%
1979	2,744	15	0.5%	$0.10	$0.08	$0.62	3.3%
1980	2,825	80	2.9%	$0.10	$0.08	$0.66	6.9%
1981	2,811	-14	-0.5%	$0.10	$0.08	$0.73	9.6%
1982	2,761	-50	-1.8%	$0.10	$0.12	$0.89	22.1%
1983	2,675	-86	-3.1%	$0.10	$0.16	$0.95	6.7%
1984	2,673	-2	-0.1%	$0.10	$0.16	$0.98	3.3%
1985	2,632	-41	-1.6%	$0.10	$0.16	$1.04	6.5%
1986	2,595	-37	-1.4%	$0.10	$0.16	$1.04	-0.5%
1987	2,570	-25	-1.0%	$0.10	$0.16	$1.17	13.0%
1988	2,353	-218	-8.5%	$0.23	$0.16	$1.39	18.3%
1989	2,219	-134	-5.7%	$0.35	$0.16	$1.64	17.9%
1990	2,102	-116	-5.2%	$0.35	$0.18	$1.89	15.3%
1991	2,050	-53	-2.5%	$0.35	$0.20	$2.02	6.9%
1992	1,923	-126	-6.2%	$0.35	$0.22	$2.07	2.6%
1993	1,824	-100	-5.2%	$0.36	$0.24	$1.91	-7.6%
1994	1,791	-33	-1.8%	$0.37	$0.24	$1.95	2.0%
1995	1,742	-49	-2.7%	$0.37	$0.24	$1.98	1.4%
1996	1,716	-26	-1.5%	$0.37	$0.24	$2.00	1.2%
1997	1,668	-48	-2.8%	$0.37	$0.24	$2.08	3.7%
1998	1,523	-145	-8.7%	$0.62	$0.24	$2.79	34.3%
1999	1,353	-170	-11.2%	$0.87	$0.29	$3.56	27.6%

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Appendix (Continued)
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2000	1,288	-65	-4.8%	$0.87	$0.34	$3.66	2.6%
2001	1,237	-51	-3.9%	$0.87	$0.34	$3.98	8.8%
2002	1,196	-41	-3.3%	$0.87	$0.37	$4.11	3.2%
2003	1,184	-12	-1.0%	$0.87	$0.39	$3.95	-3.9%
2004	1,187	3	0.3%	$0.87	$0.39	$3.84	-2.7%
2005	1,190	3	0.2%	$0.87	$0.39	$3.95	2.9%
2006	1,158	-32	-2.7%	$0.87	$0.39	$3.95	-0.1%
2007	1,107	-51	-4.4%	$0.87	$0.39	$4.20	6.3%
2008	1,057	-50	-4.5%	$0.87	$0.55	$4.45	6.0%
2009	972	-85	-8.1%	$0.87	$1.01	$5.09	14.4%

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