



U.S. Software

State Piracy Study

August 2003

State Piracy Study

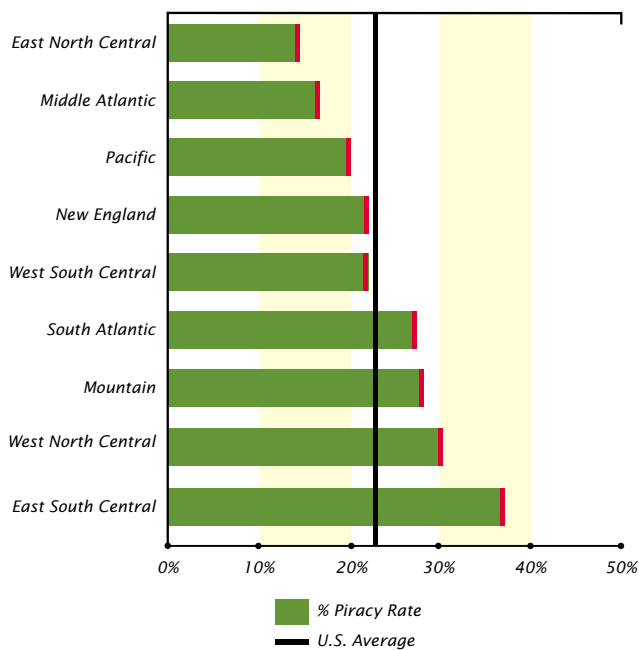
In 2003, International Planning and Research (IPR) completed a state-by-state review of software piracy rates in the United States and the implied economic impacts for the year 2002. The purpose of this study was to expand the work completed for the “Eighth Annual Global Software Piracy Study,” published in June 2003 by the Business Software Alliance (BSA). In addition, the economic analysis used in this study builds on several papers published by BSA and its member companies that analyze the job and tax impacts of software piracy, including the 1996 study, “Building an Information Economy: Software Industry Positions U.S. for New Digital Era,” by Nathan Associates. In April 2003, BSA and its member companies released a similar, follow-on study by IDC, “Expanding Global Economies: The Benefits of Reducing Software Piracy.”

A. OVERVIEW

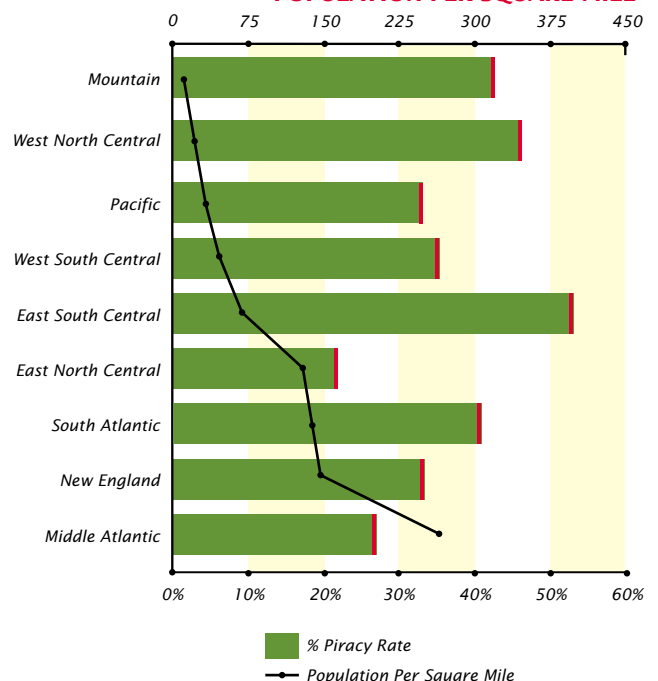
The United States has an average piracy rate of 23%, and as shown in Chart 1, software piracy varies significantly across the nation. The regions with the lowest piracy percentages were the regions with some of the largest population centers: East North Central (Illinois, Indiana, Michigan, Ohio, and Wisconsin) and Middle Atlantic (New Jersey, New York, and Pennsylvania). The regions with the highest percentages of piracy were East South Central (Alabama, Kentucky, Mississippi, and Tennessee) and the West North Central region (Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, and South Dakota).

The regions with the lowest population density tend to have the highest piracy rates, as illustrated in Chart 2, which compares the piracy rate to population per square mile. As PCs and software users increase in an area, the tendency to pirate

**CHART 1
2002 SOFTWARE PIRACY RATES
BY REGION**



**CHART 2
PIRACY RATE VS.
POPULATION PER SQUARE MILE**



software applications declined. Exceptions to this trend were the East South Central region (Alabama, Kentucky, Mississippi, and Tennessee) and the South Atlantic region (D.C., Delaware, Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia, and West Virginia). These regions had higher piracy rates than indicated by population density alone, so clearly other factors were involved besides population density.

Chart 3 compares the dollar losses by region. The Middle Atlantic, East North Central, West South Central, and New England regions show high dollar losses. The Middle Atlantic region was at \$1 billion, or 16% of the U.S. total; the East North Central region was at \$600 million, or 10%; \$557 million or 9% for the West South Central, and \$524 million or 8% for New England. The South Atlantic region, with both Florida and Virginia, ranked second in dollar losses at \$1.2 billion or 19% of the U.S. total. The Pacific region, with both California and Washington State, had the greatest loss of any region and accounted for \$1.4 billion, or 23%, of the total losses nationwide.

Unlike the population, the piracy rate relationship and retail dollar losses correspond to the population of a region. Retail dollar losses were highest in the regions with the largest population centers, which naturally have the greatest demand for software.

The Pacific, Middle Atlantic, East North Central, West South Central, and New England regions experienced higher dollar losses than their local rates of piracy would warrant. Those areas have a higher percentage of software industry employees than the national average and are therefore more sensitive to negative impacts on this industry. Interestingly, those regions all have lower piracy rates than the national average,

suggesting a greater local awareness of the economic consequences of software piracy. Nevertheless, every region is impacted by software piracy.

B. SUMMARY

Table I in Section D provides detailed piracy estimates and economic impacts by state. Below is a summary of that information for the states in each region.

NEW ENGLAND

New England ranked below the U.S. average software piracy rate of 23%. Massachusetts, the largest state in the region, and New Hampshire each had a piracy rate of 22%, while Connecticut was the lowest at 16%. Within the region, however, Maine and Vermont had piracy rates of 32% or more. New England suffered significant losses due to piracy. Massachusetts alone measured the fourth-worst retail losses of any state, an estimated \$336 million in 2002. Overall, the region lost \$524 million in retail sales. In addition, almost 6,200 jobs were lost to piracy.

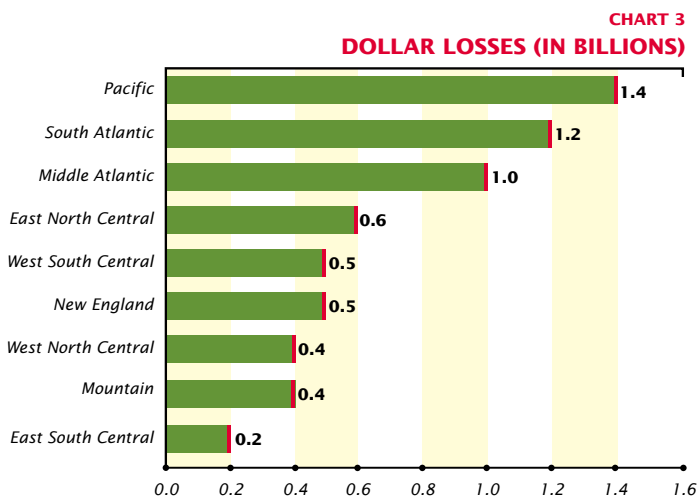
MIDDLE ATLANTIC

The Middle Atlantic, comprising three very populous states, was below the 23% national average software piracy rate as a region and by state. New York had one of the lowest piracy rates of any state in 2002 with 15%. New Jersey and Pennsylvania also experienced low piracy rates, with 17% and 19%, respectively. Still, the region lost a collective \$962 million in retail sales to piracy, with New York losing over \$448 million. In addition, these states collectively lost more than 14,400 jobs to piracy, at least 6,700 of them in New York State alone.

SOUTH ATLANTIC

The South Atlantic region is a large and varied area, including states with high populations, such as Florida, Virginia, and Maryland, and states with low populations, such as Delaware and West Virginia. Software piracy ranged from 18% in the District of Columbia to 37% in West Virginia. This region was above the 23% national average software piracy rate as a whole, with only Virginia and the District of Columbia below the national average.

With losses estimated at \$322 million, Virginia suffered the highest dollar losses from piracy. Florida was second with \$229 million in losses. Maryland lost \$212 million and Georgia lost over \$163 million. The South Atlantic region lost over



20,100 jobs to piracy in 2002, more than any other region. Florida suffered the most job losses in the region, with an estimated 5,300 lost jobs.

EAST SOUTH CENTRAL

Each state in the East South Central region was well above the 23% U.S. average rate for software piracy. In fact, this region had the highest software piracy rate of any region in the country, ahead of the Mountain region. Mississippi, with a 42% piracy rate, was highest of any state nationally.

Tennessee lost \$73 million in retail sales, and Kentucky lost \$45 million. The region suffered 5,800 lost jobs to software piracy. Retail losses almost outweigh wage and salary losses in this region, indicating the small number of software industry jobs in the area. Alabama had the fourth-worst piracy rate in the nation.

WEST SOUTH CENTRAL

This growing region had mixed results in 2002. Texas, with 19%, was below the national average of 23%, while Oklahoma, Arkansas, and Louisiana each had rates of 28% or more, well above the national average.

Texas suffered the most, with almost \$457 million in retail sales losses, the second-highest state loss in the nation. It also lost 7,500 jobs to software piracy, well above any other state in the region. Together, the region lost 10,800 jobs due to piracy. Louisiana, with a 31% piracy rate, had the highest rate in the region.

EAST NORTH CENTRAL

Illinois led the East North Central region with a piracy rate of 13%, the lowest of any state nationally, while Michigan and Ohio ranked second and third lowest nationally at 14%. Illinois experienced the largest retail software dollar losses in the region, with \$217 million. Ohio and Michigan also suffered large retail software dollar losses of \$142 million and \$124 million, respectively. This region, despite having the lowest piracy rate in the country, lost 15,700 jobs to piracy in 2002 with Illinois losing 4,500 jobs, the most in the region, and the fifth largest nationally.

WEST NORTH CENTRAL

The West North Central region is fairly diversified. Nebraska had a piracy rate equal to the 23% national average. Kansas, Iowa, and North and South Dakota were well above the national average, each with a piracy rate of 32% or more. Minnesota, the largest state in the region, had a piracy rate of 26%.

Due to piracy, the region lost \$402 million in retail software sales. Minnesota alone lost \$142 million despite its lower piracy rate. Minnesota and Missouri each lost an estimated 2,100 jobs, out of 7,900 lost for the region.

MOUNTAIN

Every state in the Mountain region had a higher piracy rate than the 23% U.S. average, although Utah and Colorado were close to the national average with a 24% piracy rate. The region has the second-highest rate of any region. Colorado experienced the highest retail sales losses in the region, totaling \$179 million, which accounts for almost half of the region's \$382 million in retail sales losses. The state also led the region in job losses with 2,200 jobs lost to software piracy, out of 7,100 lost for the region.

PACIFIC

The Pacific region had a piracy rate below the 23% national average. California and Washington were the only states below the national average in 2002, with a piracy rate of 19%. Hawaii experienced the highest piracy rate at 36%. Oregon, the third-largest state in the region, had a piracy rate of 24%.

California led the nation with \$1.1 billion in retail sales losses due to piracy. Washington State was seventh in the nation with \$251 million in retail sales losses. Oregon lost a substantial \$62 million. California lost 13,100 jobs to piracy in 2002, while Washington State lost 2,500. The region as a whole lost over 17,600 jobs, second only to the South Atlantic region in job losses.

C. METHODOLOGY

The “U.S. Software State Piracy Study,” similar to the annual BSA “Global Software Piracy Study,” consists of comparing two sets of data, the demand for new software applications, and the legal supply of new software applications. IPR developed the following method to estimate piracy by state as an extension of the country-level work developed earlier. In addition, the economic impacts of software piracy were developed to be consistent with BSA’s published studies of these impacts written by Nathan Associates. This study is for the calendar year 2002.

DEMAND

PC shipments by state were estimated from a detailed review of the employment and population of each state and market research that surveyed the PC penetration rate of each state. On this basis, estimates of PC shipments could be made for each state.

To analyze demand, PC shipments were studied in two dimensions: (1) home vs. non-home segments, and (2) replacement PCs vs. new units. Splitting the PC shipments between home and non-home purchasers represented the market segments of each country. The PC shipments were also compared to the change in the installed base of existing PCs. The part of PC shipments that represents growth of the installed base is called “new shipments” and is separated from the “replacement shipments.” Replacement shipments represent new PCs that are replacing older PCs.

To estimate software demand, IPR developed ratios for the amount of software installed on each PC. This was developed from market research on the U.S. market. From the Technology User Profile market research of Metafacts Inc., IPR determined the number of software applications installed per PC shipment and developed these ratios for the four shipment groups:

1. Home — New Shipments
2. Non-Home — New Shipments
3. Home — Replacement Shipments
4. Non-Home — Replacement Shipments

Piracy rates can vary among applications. Grouping the software applications into three tiers and using specific ratios for each tier further refined the

ratios. The tiers used were General Productivity Applications, Professional Applications, and Utilities. These were chosen because they represent different target markets and price levels, and it is believed, different piracy rates.

As part of this study, software applications installed per PC shipped have been researched and estimated using these dimensions:

1. Home vs. Non-Home
2. New PCs vs. Replacement PCs
3. Software Application Tier

From this work, an estimate of total installed software applications was calculated by state for each software tier. This produced a figure for total software installed in 2002, both legal and illegal.

SUPPLY

To estimate the supply of legal software by state, IPR relied on detailed industry sales data. BSA member companies volunteer their proprietary shipment data to the study under non-disclosure agreements for the purpose of constructing an accurate estimate of the software industry’s 2002 shipments. These data are the primary source of software shipment data.

The data were compiled only for software applications that were studied in the BSA global software piracy study. For that study, only business software applications that correspond to the three Software Application Tiers were used.

The resulting shipment data were uplifted to reflect shipments for the entire software industry. These uplift factors include estimates for open source software. For this study, IPR has assumed that open source software is free and not pirated.

Total industry shipment estimates for each Tier had been developed earlier for the BSA global software piracy study. By tying to these estimates, we believe we minimized any state biases within the sales data. In spite of this, certain states had a disproportionate amount of software sales. Some of these excess software sales were reallocated to other states. IPR attempted to minimize the impact of this judgmental data correction by keeping all reallocations to the contiguous states within each of the nine census regions. This reallocation of software sales represents transshipments, or software sold in one state but consumed in another.

PIRACY RATE ESTIMATES

The difference between software applications installed (demand) and software applications legally shipped (supply) equals the estimate of software applications pirated. These were calculated by state for 2002. The piracy rate was defined as the volume of software pirated as a percent of total software installed in each state.

RETAIL DOLLAR LOSSES

By using the average price information from the BSA "Global Software Piracy Study," the legal and pirated software revenue was calculated. This is a wholesale price estimate weighted by the amount of shipments within each software application category. To estimate retail revenue, a flat 22% markup was used. This markup is consistent with the annual BSA "Global Software Piracy Study." The national total is a loss of \$2 billion for business software applications and is consistent with the "Global Software Piracy Study." These estimates were derived from analyzing business software applications, excluding recreational software, operating systems, and client-server applications. For the purpose of consistency with earlier Nathan and Associates studies, the 23% U.S. piracy rate estimate was used to extrapolate beyond the types of software studied to the larger packaged software industry. For the total packaged software industry, the total loss was estimated at \$6.2 billion. Table I contains the estimates of software piracy's impact on business software applications and the impact of this level of piracy on the industry as a whole.

The first estimate of dollar losses due to piracy by state were based on a "where consumed" definition; it allocates all of the piracy loss in the state where it is measured. To more correctly allocate the retail losses, IPR split the losses into the wholesale and retail markup components, and allocated the wholesale losses with a "where produced" definition, by using the employment distribution of software industry employees (SIC Codes 7371-7373). The retail markup portion was presumed to be "lost" in the "consumed" state. The "where produced" definition are the losses used in the study.

DIRECT, INDIRECT AND TOTAL LOSSES

The impacts on receipts, employment, wages, and taxes paid, which stem directly from sales lost due to piracy, are termed the direct impacts. In this study, the impacts on two industry sectors were studied: the software industry defined by SIC Codes 7371-7373 and the retail sector identified by SIC Code 5730. The direct employment, wage, and tax impacts were estimated separately for each sector and the sum of these impacts constitutes the total direct impacts.

By applying data from the Bureau of Economic Analysis (BEA) Input/Output Model and estimates from the previous Nathan Associates studies, "multipliers" were estimated from the direct employment and wage losses to quantify the impact on the rest of the economy. These losses are termed "indirect," impacting industries not directly producing or selling software.

DIRECT JOB AND WAGE LOSSES

The direct impact on industry employment was estimated by applying employment/output elasticities consistent with the input/output analyses. The direct employment impact was estimated to be a national loss of 30,100 jobs, just below 12% of the employment in the packaged business software market. A similar analysis was applied to the subset of the retail market engaged in selling packaged software. The direct employment impact was estimated to be a loss of 8,800 jobs, or about 2.4% of the employment in these retail establishments. The distribution by state follows the distribution of the employment in these industrial sectors.

The average salary in the packaged business software industry is estimated to be \$80,200, significantly higher than for the economy as a whole in 2002. The part of the retail sector engaged in selling software also enjoys a modest advantage in earnings over the rest of retail. These industry averages and the variation in wages in these industries by state were used to compute the losses in wages and salaries associated with the estimated direct job losses by state.

INDIRECT JOB AND WAGE LOSSES

Consistent with the BEA Input/Output Model of the economy and previous studies, impact multipliers were used to estimate the impact of reduced employment and wages in the packaged software production and distribution sectors. In this study, the respective “total direct-effect” multipliers for employment and wages are 2.71 and 1.986 respectively. This means that for every person directly employed in the packaged business software production and distribution, there are more than 2.7 persons employed throughout the U.S. economy. Further, for every dollar of wages spent in wages in the packaged business software production and distribution sectors, more than \$1.90 is paid in wages throughout the U.S. economy. The indirect multipliers would be the direct multipliers less one (1.71 and .986 respectively). These national indirect multipliers and the distribution by state of employment and wage and salary disbursements outside of the direct industries were used to estimate the indirect impacts by state. The total of direct and indirect losses is more than 105,500 jobs and \$5.3 billion in wage losses for the U.S. economy.

TAX LOSSES

The types of taxes considered in this study include state sales taxes, state corporate income taxes, federal corporate income taxes, federal personal income taxes, and state and local personal income taxes. Local sales taxes were not estimated.

FEDERAL AND STATE CORPORATE INCOME TAXES

Corporate income taxes were calculated for the software production and distribution industries. Federal corporate income tax losses were estimated by applying national ratios of tax receipts to industry revenue developed in previous Nathan Associates studies for BSA. These national estimates were allocated to each state by the industry employment in that state. State corporate income tax losses were estimated using BEA data on state and local tax collections by industry and compilations of state corporate tax rates. \$75 million less in federal and state corporate income taxes is estimated to be collected due to piracy in this industry.

FEDERAL AND STATE PERSONAL INCOME TAXES

Previous Nathan Associates studies used an average tax rate of 16.5% of wages to estimate reductions in personal income tax paid by persons employed in the production or distribution of packaged business software. This rate has been adjusted to 16.35% to account for changes in tax law. Using this rate implies \$871 million lost in total federal personal income taxes from the software production and distribution industries and the associated indirect job losses. State personal income tax losses were estimated from state personal income tax rates and BEA data on past state personal income tax collections. The state personal income tax estimates are also for total job losses, and the estimated national loss to state personal income tax collections is \$161 million.

STATE SALES TAXES

State sales tax rates were collected for individual states and applied to the estimated retail losses (“where consumed”) to estimate the loss in state sales tax collections. Further, these implied a reasonable relationship between collections and receipts as compared with the BEA state sales tax collection data. The estimated national loss to state sales tax collections is \$330 million.

D. ESTIMATES — 2002 U.S. SOFTWARE: STATE PIRACY STUDY

Table I — Piracy by State (Dollars in Thousands)

State	Business Software Applications Studied		Total Packaged Software Industry			
	Piracy Rate	Retail Dollar Losses (Where Produced)	Retail Dollar Losses (Where Produced)	Total Employment Losses	Total Wage and Salary Losses	Total Tax Losses
Alabama	39.5%	\$13,338	\$42,104	1,476	\$52,069	\$13,562
Alaska	30.4%	\$2,319	\$7,321	213	\$8,797	\$2,695
Arizona	27.2%	\$29,513	\$93,161	1,794	\$81,840	\$22,548
Arkansas	30.5%	\$7,985	\$25,205	804	\$25,523	\$9,278
California	19.3%	\$334,749	\$1,056,652	13,133	\$802,602	\$239,105
Colorado	23.8%	\$56,638	\$178,782	2,152	\$122,820	\$29,356
Connecticut	16.1%	\$33,028	\$104,255	1,398	\$90,562	\$22,729
D.C.	17.6%	\$8,744	\$27,602	529	\$32,023	\$8,234
Delaware	31.9%	\$6,646	\$20,979	356	\$16,535	\$3,609
Florida	30.1%	\$72,399	\$228,530	5,267	\$213,311	\$60,545
Georgia	23.9%	\$51,652	\$163,042	3,029	\$142,280	\$38,321
Hawaii	36.2%	\$5,599	\$17,675	477	\$16,579	\$6,459
Idaho	28.5%	\$4,153	\$13,111	443	\$13,860	\$4,633
Illinois	13.5%	\$68,958	\$217,671	4,550	\$236,845	\$54,751
Indiana	14.5%	\$16,043	\$50,640	2,005	\$79,588	\$17,997
Iowa	34.2%	\$14,899	\$47,030	1,140	\$40,108	\$14,839
Kansas	31.5%	\$15,915	\$50,237	1,110	\$44,099	\$13,086
Kentucky	35.3%	\$14,401	\$45,457	1,357	\$47,637	\$16,640
Louisiana	30.6%	\$12,164	\$38,397	1,344	\$44,563	\$14,237
Maine	32.9%	\$5,637	\$17,793	445	\$14,602	\$6,078
Maryland	24.0%	\$67,059	\$211,676	2,323	\$133,599	\$43,784
Massachusetts	22.4%	\$106,557	\$336,352	3,174	\$221,663	\$61,876
Michigan	13.9%	\$39,359	\$124,240	3,215	\$162,389	\$36,731
Minnesota	25.6%	\$44,839	\$141,537	2,134	\$108,237	\$37,093
Mississippi	41.7%	\$7,328	\$23,130	905	\$25,167	\$11,164
Missouri	25.8%	\$30,617	\$96,645	2,147	\$91,115	\$23,822
Montana	37.6%	\$3,290	\$10,386	313	\$8,491	\$1,833
Nebraska	23.3%	\$11,937	\$37,679	807	\$32,977	\$8,466
Nevada	32.8%	\$6,280	\$19,824	742	\$27,828	\$8,168
New Hampshire	21.9%	\$10,638	\$33,578	518	\$25,109	\$4,654
New Jersey	16.7%	\$101,356	\$319,935	3,567	\$234,449	\$64,472
New Mexico	30.5%	\$6,474	\$20,436	594	\$21,639	\$5,871
New York	15.4%	\$141,856	\$447,775	6,693	\$425,857	\$105,872
North Carolina	29.2%	\$47,243	\$149,124	3,101	\$131,777	\$38,888
North Dakota	39.7%	\$5,187	\$16,372	270	\$7,684	\$5,120
Ohio	14.3%	\$45,049	\$142,199	4,004	\$177,136	\$41,038
Oklahoma	28.0%	\$11,580	\$36,552	1,132	\$38,569	\$12,134
Oregon	23.7%	\$19,563	\$61,753	1,289	\$57,479	\$13,130
Pennsylvania	19.3%	\$61,418	\$193,870	4,139	\$195,850	\$51,325
Rhode Island	24.3%	\$5,171	\$16,323	363	\$16,039	\$5,052
South Carolina	34.5%	\$14,598	\$46,078	1,375	\$46,387	\$16,719
South Dakota	34.2%	\$3,908	\$12,335	286	\$7,991	\$3,347
Tennessee	32.1%	\$23,198	\$73,227	2,014	\$75,368	\$25,469
Texas	18.6%	\$144,809	\$457,097	7,512	\$386,479	\$82,553
Utah	24.4%	\$11,228	\$35,440	862	\$36,231	\$8,613
Vermont	32.1%	\$4,852	\$15,315	267	\$11,270	\$3,622
Virginia	19.2%	\$102,119	\$322,344	3,600	\$219,854	\$48,875
Washington	19.0%	\$79,579	\$251,196	2,507	\$172,284	\$36,380
West Virginia	36.8%	\$5,101	\$16,102	547	\$17,223	\$7,245
Wisconsin	15.6%	\$20,168	\$63,661	1,939	\$77,019	\$21,540
Wyoming	40.3%	\$3,541	\$11,176	184	\$5,285	\$3,155
Total U.S.	22.8%	\$1,960,684	\$6,188,999	105,546	\$5,324,690	\$1,436,714

E. DETAILED ESTIMATES — 2002 U.S. SOFTWARE: STATE PIRACY STUDY

Table II — Piracy by State (Dollars in Thousands)

State	Piracy Rate	Retail Dollar Losses (Where Consumed)	Retail Dollar Losses (Where Produced)	Population
Alabama	39.5%	\$87,016	\$42,104	4,486,508
Alaska	30.4%	\$24,119	\$7,321	643,786
Arizona	27.2%	\$98,501	\$93,161	5,456,453
Arkansas	30.5%	\$75,507	\$25,205	2,710,079
California	19.3%	\$761,565	\$1,056,652	35,116,033
Colorado	23.8%	\$111,494	\$178,782	4,506,542
Connecticut	16.1%	\$61,535	\$104,255	3,460,503
D.C.	17.6%	\$16,847	\$27,602	570,898
Delaware	31.9%	\$36,578	\$20,979	807,385
Florida	30.1%	\$386,723	\$228,530	16,713,149
Georgia	23.9%	\$204,283	\$163,042	8,560,310
Hawaii	36.2%	\$71,378	\$17,675	1,244,898
Idaho	28.5%	\$35,262	\$13,111	1,341,131
Illinois	13.5%	\$122,931	\$217,671	12,600,620
Indiana	14.5%	\$50,510	\$50,640	6,159,068
Iowa	34.2%	\$126,984	\$47,030	2,936,760
Kansas	31.5%	\$73,043	\$50,237	2,715,884
Kentucky	35.3%	\$112,799	\$45,457	4,092,891
Louisiana	30.6%	\$130,505	\$38,397	4,482,646
Maine	32.9%	\$58,843	\$17,793	1,294,464
Maryland	24.0%	\$309,939	\$211,676	5,458,137
Massachusetts	22.4%	\$239,532	\$336,352	6,427,801
Michigan	13.9%	\$73,162	\$124,240	10,050,446
Minnesota	25.6%	\$190,185	\$141,537	5,019,720
Mississippi	41.7%	\$88,021	\$23,130	2,871,782
Missouri	25.8%	\$129,842	\$96,645	5,672,579
Montana	37.6%	\$41,783	\$10,386	909,453
Nebraska	23.3%	\$30,775	\$37,679	1,729,180
Nevada	32.8%	\$52,737	\$19,824	2,173,491
New Hampshire	21.9%	\$52,104	\$33,578	1,275,056
New Jersey	16.7%	\$228,438	\$319,935	8,590,300
New Mexico	30.5%	\$29,450	\$20,436	1,855,059
New York	15.4%	\$267,265	\$447,775	19,157,532
North Carolina	29.2%	\$198,925	\$149,124	8,320,146
North Dakota	39.7%	\$68,880	\$16,372	634,110
Ohio	14.3%	\$103,605	\$142,199	11,421,267
Oklahoma	28.0%	\$76,958	\$36,552	3,493,714
Oregon	23.7%	\$68,317	\$61,753	3,521,515
Pennsylvania	19.3%	\$207,712	\$193,870	12,335,091
Rhode Island	24.3%	\$21,897	\$16,323	1,069,725
South Carolina	34.5%	\$140,648	\$46,078	4,107,183
South Dakota	34.2%	\$48,048	\$12,335	761,063
Tennessee	32.1%	\$202,632	\$73,227	5,797,289
Texas	18.6%	\$239,606	\$457,097	21,779,893
Utah	24.4%	\$26,267	\$35,440	2,316,256
Vermont	32.1%	\$23,644	\$15,315	616,592
Virginia	19.2%	\$93,976	\$322,344	7,293,542
Washington	19.0%	\$89,230	\$251,196	6,068,996
West Virginia	36.8%	\$55,520	\$16,102	1,801,873
Wisconsin	15.6%	\$88,895	\$63,661	5,441,196
Wyoming	40.3%	\$54,584	\$11,176	498,703
Total U.S.	22.8%	\$6,188,999	\$6,188,999	288,368,698

Table III — Direct and Indirect Losses (Dollars in Thousands)

State	Direct Losses Software Production and Distribution SIC Codes 7371-3 & 5730		Total Direct and Indirect Losses	
	Employment Losses	Wage and Salary Losses	Employment Losses	Wage and Salary Losses
Alabama	426	\$17,224	1,476	\$52,069
Alaska	49	\$2,334	213	\$8,797
Arizona	745	\$43,686	1,794	\$81,840
Arkansas	185	\$7,116	804	\$25,523
California	6,075	\$484,876	13,133	\$802,602
Colorado	1,113	\$81,989	2,152	\$122,820
Connecticut	529	\$46,087	1,398	\$90,562
D.C.	172	\$12,433	529	\$32,023
Delaware	142	\$7,695	356	\$16,535
Florida	1,861	\$91,637	5,267	\$213,311
Georgia	1,075	\$68,570	3,029	\$142,280
Hawaii	138	\$4,731	477	\$16,579
Idaho	155	\$5,027	443	\$13,860
Illinois	1,456	\$101,877	4,550	\$236,845
Indiana	444	\$22,399	2,005	\$79,588
Iowa	375	\$15,268	1,140	\$40,108
Kansas	409	\$21,193	1,110	\$44,099
Kentucky	405	\$16,077	1,357	\$47,637
Louisiana	301	\$11,150	1,344	\$44,563
Maine	131	\$4,899	445	\$14,602
Maryland	1,129	\$83,578	2,323	\$133,599
Massachusetts	1,494	\$144,010	3,174	\$221,663
Michigan	836	\$57,029	3,215	\$162,389
Minnesota	806	\$55,012	2,134	\$108,237
Mississippi	261	\$6,853	905	\$25,167
Missouri	710	\$39,433	2,147	\$91,115
Montana	105	\$2,778	313	\$8,491
Nebraska	342	\$18,005	807	\$32,977
Nevada	268	\$9,908	742	\$27,828
New Hampshire	202	\$13,743	518	\$25,109
New Jersey	1,566	\$137,780	3,567	\$234,449
New Mexico	193	\$9,108	594	\$21,639
New York	2,306	\$202,159	6,693	\$425,857
North Carolina	1,089	\$60,748	3,101	\$131,777
North Dakota	92	\$2,842	270	\$7,684
Ohio	1,109	\$64,109	4,004	\$177,136
Oklahoma	362	\$14,414	1,132	\$38,569
Oregon	462	\$27,373	1,289	\$57,479
Pennsylvania	1,179	\$79,579	4,139	\$195,850
Rhode Island	117	\$6,871	363	\$16,039
South Carolina	429	\$14,688	1,375	\$46,387
South Dakota	79	\$2,727	286	\$7,991
Tennessee	635	\$25,259	2,014	\$75,368
Texas	2,917	\$210,789	7,512	\$386,479
Utah	341	\$18,475	862	\$36,231
Vermont	107	\$6,220	267	\$11,270
Virginia	1,832	\$152,016	3,600	\$219,854
Washington	1,099	\$117,591	2,507	\$172,284
West Virginia	155	\$4,931	547	\$17,223
Wisconsin	485	\$25,367	1,939	\$77,019
Wyoming	55	\$1,458	184	\$5,285
Total U.S.	38,947	\$2,681,120	105,546	\$5,324,690

Table IV — Federal and State Tax Losses (Dollars in Thousands)

State	Total Federal Corporate Income Tax Losses	Total State Corporate Income Tax Losses	Total Federal Personal Income Tax Losses	Total State Personal Income Tax Losses	Total State Sales Tax Losses	Total of Federal Tax Losses	Total of State Tax Losses	Total Federal & State Tax Losses
Alabama	\$404	\$123	\$8,513	\$1,041	\$3,481	\$8,917	\$4,645	\$13,562
Alaska	\$70	\$41	\$1,438	\$0	\$1,146	\$1,509	\$1,186	\$2,695
Arizona	\$894	\$383	\$13,381	\$2,373	\$5,516	\$14,275	\$8,273	\$22,548
Arkansas	\$242	\$100	\$4,173	\$893	\$3,870	\$4,415	\$4,863	\$9,278
California	\$10,144	\$5,602	\$131,225	\$36,920	\$55,213	\$141,369	\$97,735	\$239,105
Colorado	\$1,716	\$102	\$20,081	\$4,111	\$3,345	\$21,797	\$7,558	\$29,356
Connecticut	\$1,001	\$331	\$14,807	\$2,899	\$3,692	\$15,808	\$6,922	\$22,729
DC	\$265	\$164	\$5,236	\$1,601	\$969	\$5,501	\$2,733	\$8,234
Delaware	\$201	\$175	\$2,704	\$529	\$0	\$2,905	\$704	\$3,609
Florida	\$2,194	\$271	\$34,876	\$0	\$23,203	\$37,070	\$23,475	\$60,545
Georgia	\$1,565	\$141	\$23,263	\$5,180	\$8,171	\$24,828	\$13,493	\$38,321
Hawaii	\$170	\$94	\$2,711	\$630	\$2,855	\$2,880	\$3,579	\$6,459
Idaho	\$126	\$7	\$2,266	\$471	\$1,763	\$2,392	\$2,241	\$4,633
Illinois	\$2,090	\$141	\$38,724	\$6,113	\$7,683	\$40,814	\$13,937	\$54,751
Indiana	\$486	\$143	\$13,013	\$1,831	\$2,526	\$13,499	\$4,499	\$17,997
Iowa	\$451	\$198	\$6,558	\$1,283	\$6,349	\$7,009	\$7,830	\$14,839
Kansas	\$482	\$227	\$7,210	\$1,588	\$3,579	\$7,693	\$5,394	\$13,086
Kentucky	\$436	\$218	\$7,789	\$1,429	\$6,768	\$8,225	\$8,415	\$16,640
Louisiana	\$369	\$174	\$7,286	\$1,188	\$5,220	\$7,655	\$6,582	\$14,237
Maine	\$171	\$81	\$2,387	\$496	\$2,942	\$2,558	\$3,520	\$6,078
Maryland	\$2,032	\$137	\$21,843	\$4,275	\$15,497	\$23,875	\$19,909	\$43,784
Massachusetts	\$3,229	\$1,784	\$36,242	\$8,645	\$11,977	\$39,471	\$22,406	\$61,876
Michigan	\$1,193	\$51	\$26,551	\$4,547	\$4,390	\$27,743	\$8,987	\$36,731
Minnesota	\$1,359	\$264	\$17,697	\$5,412	\$12,362	\$19,055	\$18,037	\$37,093
Mississippi	\$222	\$11	\$4,115	\$654	\$6,161	\$4,337	\$6,827	\$11,164
Missouri	\$928	\$234	\$14,897	\$2,278	\$5,486	\$15,825	\$7,997	\$23,822
Montana	\$100	\$5	\$1,388	\$340	\$0	\$1,488	\$345	\$1,833
Nebraska	\$362	\$218	\$5,392	\$956	\$1,539	\$5,753	\$2,713	\$8,466
Nevada	\$190	\$0	\$4,550	\$0	\$3,428	\$4,740	\$3,428	\$8,168
New Hampshire	\$322	\$226	\$4,105	\$0	\$0	\$4,428	\$226	\$4,654
New Jersey	\$3,071	\$254	\$38,332	\$9,108	\$13,706	\$41,404	\$23,069	\$64,472
New Mexico	\$196	\$145	\$3,538	\$519	\$1,473	\$3,734	\$2,137	\$5,871
New York	\$4,299	\$696	\$69,628	\$17,886	\$13,363	\$73,926	\$31,945	\$105,872
North Carolina	\$1,432	\$311	\$21,545	\$7,643	\$7,957	\$22,977	\$15,911	\$38,888
North Dakota	\$157	\$70	\$1,256	\$192	\$3,444	\$1,414	\$3,706	\$5,120
Ohio	\$1,365	\$217	\$28,962	\$5,314	\$5,180	\$30,327	\$10,711	\$41,038
Oklahoma	\$351	\$124	\$6,306	\$1,890	\$3,463	\$6,657	\$5,477	\$12,134
Oregon	\$593	\$150	\$9,398	\$2,989	\$0	\$9,991	\$3,139	\$13,130
Pennsylvania	\$1,861	\$279	\$32,021	\$4,700	\$12,463	\$33,883	\$17,442	\$51,325
Rhode Island	\$157	\$86	\$2,622	\$654	\$1,533	\$2,779	\$2,273	\$5,052
South Carolina	\$442	\$268	\$7,584	\$1,392	\$7,032	\$8,027	\$8,692	\$16,719
South Dakota	\$118	\$0	\$1,307	\$0	\$1,922	\$1,425	\$1,922	\$3,347
Tennessee	\$703	\$285	\$12,323	\$0	\$12,158	\$13,026	\$12,443	\$25,469
Texas	\$4,388	\$0	\$63,189	\$0	\$14,975	\$67,577	\$14,975	\$82,553
Utah	\$340	\$51	\$5,924	\$1,051	\$1,248	\$6,264	\$2,349	\$8,613
Vermont	\$147	\$9	\$1,843	\$442	\$1,182	\$1,990	\$1,633	\$3,622
Virginia	\$3,095	\$109	\$35,946	\$5,496	\$4,229	\$39,041	\$9,834	\$48,875
Washington	\$2,411	\$0	\$28,168	\$0	\$5,800	\$30,580	\$5,800	\$36,380
West Virginia	\$155	\$426	\$2,816	\$517	\$3,331	\$2,971	\$4,274	\$7,245
Wisconsin	\$611	\$349	\$12,593	\$3,543	\$4,445	\$13,204	\$8,337	\$21,540
Wyoming	\$107	\$0	\$864	\$0	\$2,183	\$971	\$2,183	\$3,155
Total U.S.	\$59,414	\$15,472	\$870,587	\$161,022	\$330,218	\$930,001	\$506,713	\$1,436,714

Table V — 2001/2002 Comparison (Dollars in Thousands)

Business Software Applications Compared, 2001-2002				
State	Piracy Rate		Retail Dollar Losses Where Consumed	
	2001	2002	2001	2002
Alabama	43.5%	39.5%	\$57,023	\$27,567
Alaska	40.5%	30.4%	\$8,204	\$7,641
Arizona	35.7%	27.2%	\$37,818	\$31,205
Arkansas	33.5%	30.5%	\$22,863	\$23,921
California	18.5%	19.3%	\$141,522	\$241,265
Colorado	24.8%	23.8%	\$28,679	\$35,321
Connecticut	14.1%	16.1%	\$15,296	\$19,494
DC	16.3%	17.6%	\$2,743	\$5,337
Delaware	33.3%	31.9%	\$9,143	\$11,588
Florida	38.0%	30.1%	\$160,551	\$122,514
Georgia	32.4%	23.9%	\$70,700	\$64,717
Hawaii	46.4%	36.2%	\$23,174	\$22,613
Idaho	39.2%	28.5%	\$13,333	\$11,171
Illinois	13.0%	13.5%	\$38,672	\$38,945
Indiana	18.1%	14.5%	\$20,252	\$16,002
Iowa	41.6%	34.2%	\$85,559	\$40,229
Kansas	35.5%	31.5%	\$24,620	\$23,140
Kentucky	40.0%	35.3%	\$38,396	\$35,735
Louisiana	44.6%	30.6%	\$57,450	\$41,344
Maine	44.0%	32.9%	\$19,482	\$18,642
Maryland	19.6%	24.0%	\$22,248	\$98,189
Massachusetts	22.5%	22.4%	\$43,880	\$75,884
Michigan	17.6%	13.9%	\$39,125	\$23,178
Minnesota	25.9%	25.6%	\$40,212	\$60,251
Mississippi	48.7%	41.7%	\$38,795	\$27,885
Missouri	18.6%	25.8%	\$28,441	\$41,134
Montana	44.5%	37.6%	\$10,055	\$13,237
Nebraska	21.1%	23.3%	\$7,418	\$9,750
Nevada	38.3%	32.8%	\$12,603	\$16,707
New Hampshire	17.2%	21.9%	\$5,625	\$16,507
New Jersey	18.5%	16.7%	\$39,220	\$72,369
New Mexico	37.1%	30.5%	\$11,167	\$9,330
New York	11.9%	15.4%	\$44,109	\$84,670
North Carolina	35.6%	29.2%	\$63,917	\$63,020
North Dakota	45.7%	39.7%	\$19,507	\$21,821
Ohio	17.6%	14.3%	\$45,981	\$32,822
Oklahoma	37.1%	28.0%	\$29,927	\$24,381
Oregon	34.7%	23.7%	\$43,900	\$21,643
Pennsylvania	17.4%	19.3%	\$51,126	\$65,803
Rhode Island	31.8%	24.3%	\$8,279	\$6,937
South Carolina	44.3%	34.5%	\$54,046	\$44,558
South Dakota	40.6%	34.2%	\$12,425	\$15,222
Tennessee	35.2%	32.1%	\$43,790	\$64,194
Texas	16.2%	18.6%	\$76,936	\$75,908
Utah	27.6%	24.4%	\$7,069	\$8,321
Vermont	39.8%	32.1%	\$7,500	\$7,491
Virginia	18.8%	19.2%	\$25,298	\$29,772
Washington	28.3%	19.0%	\$46,733	\$28,268
West Virginia	47.6%	36.8%	\$25,570	\$17,589
Wisconsin	14.1%	15.6%	\$15,253	\$28,162
Wyoming	48.2%	40.3%	\$12,076	\$17,292
Total U.S.	25.1%	22.8%	\$1,807,709	\$1,960,684

APPENDIX: STATES BY REGION

NEW ENGLAND

Connecticut
Maine
Massachusetts
New Hampshire
Rhode Island
Vermont

MIDDLE ATLANTIC

New Jersey
New York
Pennsylvania

SOUTH ATLANTIC

District of Columbia
Delaware
Florida
Georgia
Maryland
North Carolina
South Carolina
Virginia
West Virginia

EAST SOUTH CENTRAL

Alabama
Kentucky
Mississippi
Tennessee

WEST SOUTH CENTRAL

Arkansas
Louisiana
Oklahoma
Texas

EAST NORTH CENTRAL

Illinois
Indiana
Michigan
Ohio
Wisconsin

WEST NORTH CENTRAL

Iowa
Kansas
Minnesota
Missouri
Nebraska
North Dakota
South Dakota

MOUNTAIN

Arizona
Colorado
Idaho
Montana
Nevada
New Mexico
Utah
Wyoming

PACIFIC

Alaska
California
Hawaii
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