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## Does a Free Download Equal a Lost Sale?

By DANIEL GROSS

**R**ECORD industry executives hold it as an article of faith that the advent of file-sharing Web sites like Napster and Kazaa was largely responsible for a stunning decline in the sales of recorded music. From 1999 to 2003, after all, the number of compact discs and other forms of recorded music shipped in the United States plunged 31 percent.

Sure, other factors - including the stubbornly high price of CD's, a recession that cut into discretionary spending, a plethora of unappealing pop acts and the intense competition for the entertainment dollar - may have contributed. "But there's no question that file sharing has an enormous impact on sales," said Mitch Bainwol, chairman and chief executive of the Recording Industry Association of America, based in Washington. "The most basic notion of economics is this notion of perfect substitution. You have two products that are in essence substitutes, so the market drives toward the freebies."

The association has buttressed this Econ 101 lesson with consumer surveys showing that the industry's core audience would rather download tunes free than pay for them. In November 2002, Peter D. Hart Research Associates found that when 19- to 24-year-olds were asked about a song they liked, 32 percent said they would download it, while only 9 percent said they would buy it.

From the outset, however, economists have been skeptical that every free download represented a lost sale. And several years after the explosion, and subsequent implosion, of the original Napster, academics have begun to plug data about free downloading into complex equations and theoretical frameworks.

Stan Liebowitz, an economist of the University of Texas at Dallas who has synthesized much of the research, sees economists as generally coming to an agreement. "I think the consensus is going to be that file sharing and downloading is going to be harmful to sales of music," he said. The question is, how much?

Two professors at the Wharton School at the University of Pennsylvania, Joel Waldfogel and Rafael Rob, measured the downloading and CD-buying behavior of students at the University of Pennsylvania, Hunter College in New York and City College of New York. In a working paper published recently by the National Bureau of Economic Research, they concluded that students each spent \$126 on the best-selling CD's without downloading and \$101 with downloading. While conceding that their research did not cover a representative sample, they concluded that every 10 downloads of music resulted in 1 to 2 lost sales.

Why such a small correlation? Many downloads represent transactions that would not have taken place at the asking price. As part of the study, the professors asked students to place a dollar value on CD's they bought and

on CD's they effectively obtained free. The average valuation of downloaded hit CD's was only \$8.81 - far below the retail price. "If they were downloading things they would not have purchased, that would tend not to reduce industry revenue and not to increase displacement," Professor Waldfogel said.

While most studies conclude that free downloads depress music sales to some degree, Felix Oberholzer-Gee, an associate professor of business administration at Harvard Business School, isn't ready to add his voice to the harmony. In a paper he wrote with Koleman S. Strumpf of the University of North Carolina at Chapel Hill, he examined the correlation between popular downloads and popular CD's in the fall of 2002.

They found that Eminem's "8 Mile" soundtrack was the second most popular among albums sold, and that his song, "Lose Yourself," was the most popular among file sharers. It seems that downloading was more a symptom of an artist's popularity in the record stores than a barrier to it. "Our best guess is that peer-to-peer networks in 2002 had no effect whatsoever on sales," Professor Oberholzer-Gee said.

ANALYZING the economics of downloading is difficult, partly because the landscape has changed so rapidly. As the industry has begun to embrace digital distribution of music, the free-for-all era of file sharing is slowly giving way to the more commercial age of iTunes. Plainly, many consumers are reluctant to buy music for \$15.99 a CD at large record stores. But that doesn't necessarily mean doom and gloom for the industry.

Contrary to most predictions, sales of recorded music rose earlier this year. In the first half of 2004, shipments of CD's rose 10.2 percent from the period the previous year, according to the recording industry group. "In that context, there's a tourniquet around the problem," said Mr. Bainwol. He said the industry's crackdown on file sharing was bearing some fruit.

But Professor Oberholzer-Gee draws a different lesson. "Sales can go up even when the usage of peer-to-peer technology is rising," he said. So it appears that the digitization of music will continue to be a boon both to music-loving consumers and to data-loving economists.

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