WASHINGTON — Kailyn Lowry, at age 17, decided to let MTV film her pregnancy and the birth of her first child in the hope of persuading other young men and women to wait to start a family.

“I did get two awesome blessings,” said Ms. Lowry, now 21 and married with a second child. “But I still haven’t gotten my bachelor’s degree, because, one, day care is so expensive and, two, how do you balance studying and having little ones at home?”

Ms. Lowry’s cautionary tale seems to have made an impression on at least some viewers. A new economic study of Nielsen television ratings and birth records suggests that the show she appeared in, “16 and Pregnant,” and its spinoffs may have prevented more than 20,000 births to teenage mothers in 2010.

The paper, to be released Monday by the National Bureau of Economic Research, makes the case that the controversial but popular programs reduced the teenage birthrate by nearly 6 percent, contributing to a long-term decline that accelerated during the recession.

“It’s thrilling,” said Sarah S. Brown, the chief executive of the National Campaign to Prevent Teen and Unplanned Pregnancy, a nonprofit group in Washington. “People just don’t understand how influential media is in the lives of young people.”

Each episode of “16 and Pregnant” follows a different teenager through her pregnancy, delivery and the first weeks of parenthood. Its “Teen Mom” spinoff series, the latest season of which debuts on Jan. 21, follows up with the mothers and their children. The depiction of both joy and hardship is unflinching, with angry parents, medical complications, lost sleep, financial difficulties and fights with absentee boyfriends.

The two shows are both among MTV’s most watched, with some episodes drawing more than three million viewers, many of them young women. But the shows also have critics who say they glamorize teenage parenthood — especially since many of the mothers have become celebrities as a result of the show.

Farrah Abraham, for instance, appeared in a widely distributed sex tape and is now on the VH1 show “Couples Therapy.” A tabloid favorite, Jenelle Evans, has publicly documented her problems with drug abuse and has been repeatedly arrested.

“Only 40 percent of teenage mothers ever graduate high school; two-thirds of families begun by an unmarried teen mother are poor,” said one review of the program by the Media Research Center, a conservative group. “So what does MTV do? It shows how cool teen pregnancy is with a new reality series.”

But the show — in part by educating teenagers about the difficulty of having a child, in part by stressing the consequences of unprotected sex and in part by fostering a conversation about contraceptives and pregnancy — seems to have reduced the rate of teenage births, according to the economic analysis by Melissa S. Kearney, the director of the Hamilton Project, a research group in Washington, and Phillip B. Levine of Wellesley College.

Ms. Kearney and Mr. Levine examined birth records and Nielsen television ratings, finding that the rate of teenage pregnancy declined faster in areas where teenagers were watching more MTV programming — not only the “16 and Pregnant” series — than in areas where they did not. The study focuses on the period after “16 and Pregnant” was introduced in 2009 and accounts for the fact that teenagers who tuned in to the show might have been at higher risk of having a child to begin with.

“The assumption we’re making is that there’s no reason to think that places where more people were watching more MTV in June 2009, would start seeing an excess rate of decline in the teen birthrate, but for the change in what they were watching,” Mr. Levine said.

Researchers who had reviewed the paper said that its conclusions, as striking as they were, seemed sound, while stressing that every study has limitations. For example, there is no way to know whether individual viewers of the program changed their behavior by avoiding unprotected sex, but the researchers were able to correlate higher viewership over all with reduced birthrates.
“It’s a substantial and an important finding,” said Diane Schanzenbach of Northwestern University. “If they told us this cut the rate in half, I wouldn’t believe it,” she added.

The study also explores how “16 and Pregnant” might have influenced teenagers’ behavior. For example, the two economists showed that social-media postings about contraception and Internet searches on the topic spiked sharply whenever the show was being broadcast.

Despite the criticism of the program and the mothers it depicts, teenagers who have seen it said it helped demonstrate how hard being a young parent could be, and began a conversation about how a teenager might end up in that circumstance.

“Watching ‘Teen Mom,’ you’re close to the characters,” said Kendall Schutzer, 17, a senior at a Washington high school. “You’re watching them go through their day. You’re seeing what different aspects of life are like with a child. I don’t know how else you could get to know something like that.”

Malachi Stoll, also 17, said that the show gave him and his classmates an easy way to talk about a “taboo” topic. But Mr. Stoll, a senior at a Maryland high school, said he felt it did not depict the full extent of the challenge of teenage parenthood.

“The show only documents those first nine months, and maybe a little after,” he said. “Does the girl finish high school? Where does the child end up? Those are topics that are very difficult to document, but important to getting the message across of what the ramifications are.”

The show and its spinoffs seem to have helped accelerate a long-term decline in the teenage birthrate. Ms. Brown said that several factors had driven it, including better use of contraception and the tendency of teenagers today to have fewer sexual partners than their predecessors did.

“It’s less sex and more contraception,” Ms. Brown said.

In 1991, 62 teenage girls out of every 1,000 gave birth. By 2007, that ratio had fallen to 42 out of every 1,000. The latest recession and slow recovery caused the birthrate to drop more rapidly, to 29 out of every 1,000 by 2012.

The effect of “16 and Pregnant” could account for about one-third of the decline during an 18-month period through 2010, the study found. The measured impact on fertility was greatest for black teenagers, who tend to be more likely to have children than their white and Asian counterparts.

Continuing to pare the rate of accidental and teenage childbearing would have broad, long-term economic effects, experts say. “Families born by accident, rather than design, are bad for men, bad for women and really bad for kids,” said Kathryn Edin, a poverty researcher at Harvard.

“Rising inequality and declining prospects for people at the bottom have created a situation where it doesn’t matter that much for these teenagers,” she said of the very low-income teenagers who are more likely to have a child. “It does not seem like their life prospects are going to be significantly harmed by having a child, because they’re so disadvantaged already.”

Ms. Edin said that shows like “16 and Pregnant” might help break down the “don’t ask, don’t tell” conditions that lead to teenage pregnancy, where partners do not communicate with one another about their expectations.

The National Campaign said that the study provided more evidence that the show could act as a powerful educational tool. “You can have all the sex-ed you want,” Ms. Brown said, “but if you can say, ‘Could that happen to me?’ That brings a reality and a heightened connection that is very significant for teenagers.”