# The Fertility Response to September 11th: Evidence from the Five Boroughs

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## Introduction

The idea that catastrophic or historically significant events may have an effect on fertility rates is popular in the media and has precedence in the existing literature. Changes in an individual's fertility behavior as the result of an unexpected event is likely to be a function of the type of event, its duration and severity, and its physical proximity to the individual. The terrorist attacks of September 11th, which resulted in huge loss of life and immense national grief, is one event which might be expected to elicit an immediate or long-term change in fertility behavior among affected individuals. The purpose of this research is to determine whether the September 11th attacks generated a positive or negative fertility response in New York City or the surrounding region.

## Data

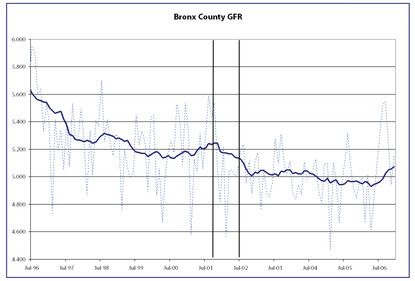
Natality data for this research was obtained from the vital statistics registry at the National Center for Health Statistics. The monthly number of births in each county in the New York metropolitan area was documented for an approximately 10-year period from July 1995 to December 2006. County populations in each month were constructed by interpolating annual Census Bureau estimates of the total county population and the population of women between the ages 15 and 50. Crude birth rates and general fertility rates were then calculated for each county. The resulting 21 series of CBR's and GFR's (one for each county) encompass 138 periods of monthly observations centered on the September 11th attacks.

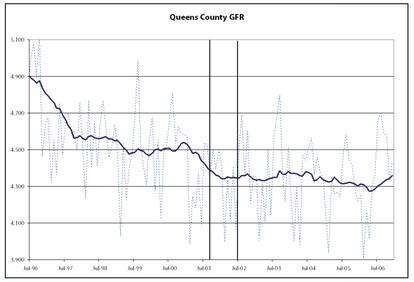
## Methods

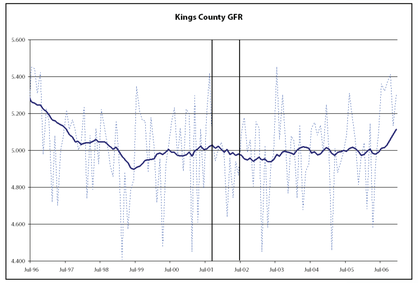
Ordinary least squares regression is used to detect differences in the CBR and GFR in each county in the pre-9/11 and post-9/11 time periods. Models are estimated separately for each county and take the form

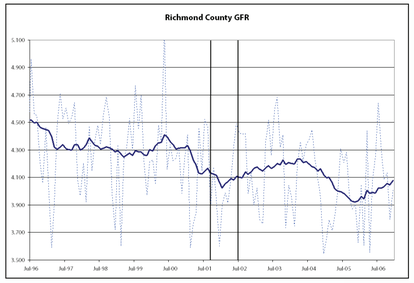
$$gfr_t = \alpha + \beta month_t + \gamma time_t + \delta effect_t$$
$$cbr_t = \alpha + \beta month_t + \gamma time_t + \delta effect_t$$

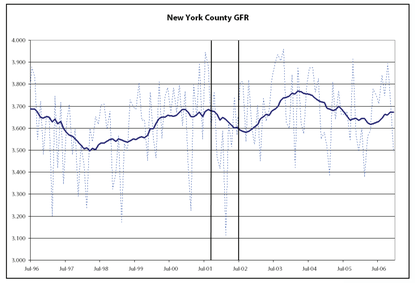
where *month* is the birth month, *time* indicates the time trend and *effect* indicates various values of time following September 11th, after allowing for a standard period of gestation. The coefficient on the *effect* variable can be interpreted as the change in the respective rate after accounting for seasonality and the prior trend in fertility.

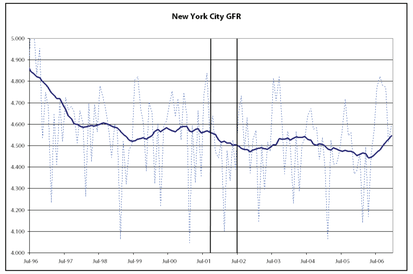


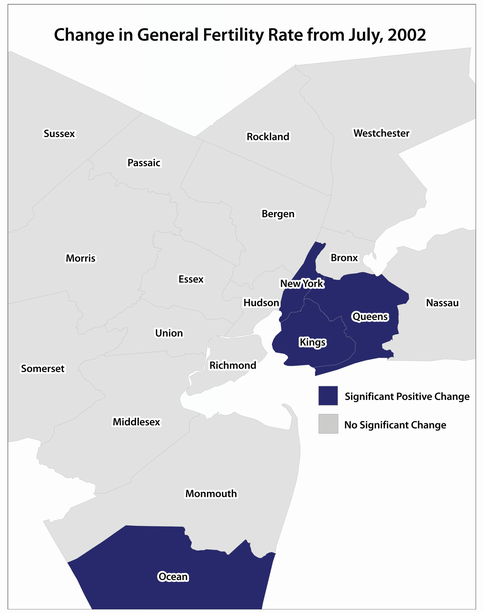




**Change in General Fertility Rate in New York Metropolitan Area and New York City Boroughs**

| | Period | | | | |
|---|---|---|---|---|---|
| | First Year After Only (7/02-6/03) | Second Year After Only (7/03-6/04) | Two Years After (7/02-6/04) | Three Years After (7/02-6/05) | Post-9/11 (7/02-12/06) |
| New York Metro | .003 | .058 * | .035 | .015 | .054 * |
| New York City | .044 | .045 | -.000 | -.002 | .104 ** |
| Bronx | -.085 | .008 | -.046 | -.067 | .047 |
| Kings | -.073 | .015 | -.035 | -.024 | .114 * |
| New York | .026 | .106 ** | .076 ** | .077 ** | .097 ** |
| Queens | -.059 | .035 | -.015 | -.006 | .150 ** |
| Richmond | .023 | .130 * | .088 | .038 | .108 |

*Coefficients from OLS regression of lapsed time periods since July 2002 on county general fertility rates. Controls for prior time trend and seasonality. *** p<.001, ** p<.01, *p<.05.*

## Conclusions

The general fertility rate significantly increased in both New York City and the New York metropolitan area in the post-9/11 period. The increase was nearly twice as large for the city relative to the MA. All five boroughs exhibited higher levels of fertility, with the results for Queens, Kings, and New York Counties statistically significant. Among suburban counties, only Ocean County in New Jersey showed a significant increase.

The fertility response appears to have occurred earliest in New York County, where a significant and substantial increase is apparent in the 2nd year following the September 11th attacks. As the site of the World Trade Center, New York County might be expected to exhibit the most profound effect. The lack of a perceptible response in the outlying counties suggests that economic conditions in the area are not the primary reason for the increased fertility within New York City.

This research might benefit from a longer period of observation prior to and following the events of 9/11. In addition, comparable analyses could be performed for Washington, D.C., another area in which the September 11th attacks might be expected to affect levels of fertility.

## References

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