Women are shunning academic careers in maths-intensive fields because the lifestyle is incompatible with motherhood, researchers at Cornell University found in a study to be published next month in American Scientist Magazine.

Universities have long been criticised for hiring and evaluation policies that discriminate against women, but the finding of this new study point to the female biological clock as a main reason why so few women end up as professors in fields such as math, engineering, physics and computer science.

A woman who wants a family looks at the rigorous path to a tenured position and considers how old she will be before she can start a family and how little time she will have to raise her children. Many of those women opt for a more flexible career.

"Universities have been largely inflexible about anything other than the standard timetable, which is you kill yourself for years and only then would you consider getting pregnant," said Wendy Williams, a human development professor at Cornell who co-authored the study with her husband, Stephen Ceci.

Williams and Ceci analysed data about the academic careers of men and women with and without children. Before women became mothers, they had careers equivalent to or more successful than their male peers. But once children entered the equation, the dynamic changed.

Women in other academic fields such as the humanities and social sciences face similar hurdles and often leave academia as well. But because there are so many women in those Ph.D. programs, enough ultimately stay to amount to a critical mass of female professors.

In maths-heavy fields, however, women make up a tiny minority of the graduate students. So when the rare few who make it through a Ph.D. program leave because universities are insensitive to their needs as mothers, the net result is virtually no women represented on faculty rosters, the study said.

In physics, for example, women make up about 15 per cent of Ph.D. candidates but fewer than 5 per cent of full professors, according to the study.

"In these fields where there are few women to begin with it reduces a stream down to a trickle," Ceci said.

For Julie Lin, a professor at Harvard Medical School and a physician at Brigham and Women's Hospital, juggling two children and an academic career has long been a challenge. Over the years, she has watched many of her female colleagues drop out of academics once they had children.

"The pressure of the job and of the family is sometimes completely overwhelming," Lin said.

The issue of women in the sciences has gained increased attention lately as Sheryl Sandberg, chief operating officer of Facebook, made headlines by urging more women to enter the tech field.

Critics argue the issue is more complicated than a woman's biology. Women often leave the male-dominated math and tech industries because they struggle to stand out in an environment that favours men, they maintain.

"When a woman has put 12 years into her education, it takes more than just the pull at home to dislodge her," said Karen Sumberg, senior vice president at the Center for Talent Innovation, a nonprofit think tank on diversity in the workplace.

"Kids are a safe answer. It doesn't get into the other tough topics," Sumberg said.