

# Women in cities less likely to have children

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A new study in *Behavioral Ecology* finds that women are less likely to procreate in urban areas that have a higher percentage of females than males in the population.

Although the majority [modern cities](#) have more women than men and thus suffer from lower fertility rates, the effects of female-biased sex

ratios—having more women than men in a population—is less studied than male-biased ratios. Researchers here analyzed how female-biased sex ratios are linked to marriages, reproductive histories, dispersal, and the effects of urbanization on society.

The research team from University of Turku, University of Helsinki and Pennsylvania State University used a massive internal migration event that occurred in Finland during WWII, when 10% of Finnish territory was ceded to the Soviet Union and over 400,000 citizens were evacuated. The Finnish government implemented a settlement act to provide land for farmers to replace the territory they lost. Each village in the ceded territory was assigned to a specific location in western Finland to keep communities together, though evacuees were not required to move to their assigned location. Researchers consulted a database of the evacuees, which was compiled of interviews of evacuees between 1968 and 1970. The database entries list the name, sex, date of birth, birthplace, occupation, year of marriage, reproductive records, and the years and names of all places the evacuee lived from birth until the time of the interview.

Researchers followed the annual reproductive and dispersal decisions of 8,296 evacuee women from 1945 to 1955 who were between the ages of 19 and 42 during this time, were unmarried when the war ended in 1945, and whose reproductive status and annual place of residence were known. Researchers measured the sex ratios in the locations these women lived throughout this period and estimated women's probability to start a family or disperse.

The study found that the likelihood of reproducing was strongly influenced by local sex ratio but that this relationship differed between rural and urban environments. While female biased population sex ratio lowered women's probability to reproduce for the first time in urban environments this was not the case in rural areas. However, women did

not move into areas with more men, instead they were more likely to relocate to [urban areas](#), despite the sex ratio being strongly female-biased in these locations. The researchers concluded that women probably moved to urban areas for work and education opportunities, but then experienced a competitive market for finding a spouse and thus were less likely to have children than women who lived outside of urban areas. Overall, women were 15% less likely to reproduce in urban areas compared to rural areas. In towns, every percentage of increase of men in the population increased women's probability to have first child by 2.7% whereas in [rural areas](#) increase was only 0.4%.

Researchers also noted that while the population they studied is historical, the findings can be applicable to present day urban environments. Women outnumber men in many cities across the developing and developed world, and they may be finding themselves in the same predicament experienced by Finnish [women](#) many decades ago.

**More information:** *Behavioral Ecology* (2021). [DOI: 10.1093/beheco/arab007](#)

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