

List of Indicators To Monitor Birth Rate

In order to predict maternity occupation rates

Indicator 1: Sporting victories.

According to the British Medical Journal, **sporting victories** can create an intense emotional stimulus, leading to an **increase in births**. For example, in Catalonia, births experienced a **baby boom** of 16% in February and 11% in March 2010, nine months after the goal that sealed Barça's triple victory.

Therefore, 9 months after a big sporting victory, maternities should expect an increased occupation.

Indicator 2: Ambient temperature.

A study from the U.S. National Library of Medicine finds that one additional day with a maximum temperature of **30–32 °C**, relative to a day with a temperature of 28–30 °C, **decreases the birth rate** 9 months later by 0.24%, or **92 babies per month** in South Korea. This reduced number of pregnancies are due to increased fatigue, heat-related diseases, reduced sexual desire and many other factors caused by the heat. But the impact of the temperature did not vary according to the mother's characteristics, including education and age (no differential effect on mothers of different backgrounds).

Indicator 3: Twitter pregnancy hashtags.

Revealing to the Twittersphere the amount of time that women have been pregnant seems to be a tendance these days. “#9monthspregnant”, “#babyin3”, “#cycle2” ... Now, we can monitor these hashtags and detect when there is an **increase** of one of them. This way, we **detect the delivery date** of these women and, thereby, predict maternity occupation rates by watching twitter hashtags.

Indicator 4: Economic state.

According to the Pew Research Center analysis of state fertility and economic data, there is evidence of a correlation between economy and birth rate. For example, in 2008, just after the stock market crash leading to a **recession**, birth rates in the United States began to **decline** after rising to their highest level in two decades. It appears that the falloff in fertility coincides with **deteriorating economic conditions**, seen through key economic indicators including changes in per capita income, housing prices and share of the working-age population that is employed.

Therefore, monitor the changes and the variations of the economical state of the country can help to predict birth rates.

Indicator 5: Variations in the current health context (Covid-19).

In 2020, 735,000 babies were born in France. In other words, the lowest annual number of births since the end of World War II: it's a baby crash. The **worldwide decline** in the birth rate could reach 10 to 15% in 2020 and 2021, says the banking group HSBC. This would mean fifteen or **twenty million births lost**, an impact on the world population nearly "ten times greater than the number of deaths due to the pandemic".

As it seems, we are approaching a **demographic crisis**, and we need to keep on monitoring the changes of the pandemic to be able to predict the future birth rate, like lockdowns (which tend to decrease natality), curfew...

Indicator 7: Immigration & foreign women.

According to statistics provided by the INSEE, immigration and people born abroad contribute more and more to births each year in France.

Between 1999 and 2019, the number of births of children with both French parents fell while the number of births of **children with foreign parents** increased by 72,4%.

In 2019, only 68% of births, or around two out of three children, have their parents born in France.

These figures say one thing; the French birth rate is **increasing** when there are waves of **immigration**. We could monitor the number of women that immigrate and analyze their potential pregnancy, as well as checking the foreign women already living in France.

Indicator 8: Women's health data

While wanting to know when and where women are going to be pregnant, we could find all this information directly from them. Health tracking apps are used by millions of women worldwide and have already been used to study a lot of health data lately (menstrual cycle lengths, fluctuations, fertility). With a **mobile health tracking app**, women can enter their age and birth control information and keep daily logs of symptoms relevant to pregnancy, including basal body temperature, period starts, and ovulation tests. Crucially, they also allow women to log pregnancy tests, providing a **ground truth source of pregnancy data**.

Sources:

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