**U.S. Birth Trends Exploratory Data Analysis & Visualization (1994-2014)**

**Introduction**

This report is an in-depth analysis of the U.S. birth data spanning from 1994-2014 with a focus on yearly, decennial and monthly trends. The dataset gives valuable insights into the dynamics of birth rates over this two-decade period.A graph of birth rate

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**Key Insights**

*Yearly Trends*

The yearly birth data reveals a noticeable surge in births during the mid-to-late 2000s, evident from the darker red bars in the yearly data's bar chart. This could indicate a societal shift or policy changes during that period that positively influenced birth rates. To support this insight, further investigation into historical events and policies implemented during the mid-to-late 2000s could provide a better understanding behinds why this occurred.

On the other hand, the mid-to-late 1990s shows a decline in the number of births. Investigating potential causes for this decline, beyond the obvious demographic factors, may reveal underlying external influences that impacted these rates during that period.A pie chart with numbers and a number on it

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*Decennial Trends*

In terms of the different decades, it’s clear that the overwhelming majority of births came in the 2000s but this is obvious due to the fact that the 2000s category carries the data over the span of 10 years as opposed to the 1990s and 2010s having 6 and 4 years respectively. I would recommend an expansion of this data set from 1990-2020 in order to have evenly split categories to acquire a more comprehensive understanding of decennial birth trends

A graph with blue lines and dots

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*Monthly Patterns*

August emerges as the month with the highest number of births, suggesting a potential correlation with events such as the holidays that can influence conception rates. Additionally, the dominance of summer in terms of overall births aligns with existing research that indicates decreased fertility during warmer months leading to fewer births 9 months later (Cho, 2020). As such, February exhibits the fewest births, which could be linked to factors such as fewer days in the month and the higher temperatures in summer affecting conception rates.

**Recommendations**

To provide a more comprehensive understanding of demographic trends, it is recommended that we expand the dataset to include the number of deaths. By incorporating mortality data, future analyses could explore net population change, allowing for a more nuanced understanding of demographic shifts. Visualizations depicting the difference between births and deaths over time would offer insights into population dynamics, which could potentially reveal patterns influenced by advancements in healthcare, epidemics or socio-economic factors.

**Conclusion**

To conclude, this exploratory analysis of U.S. birth trends from 1994-2014 unveiled some intriguing patterns while also raising questions about the societal, cultural, and policy influences on these demographic shifts. The insights gained contribute to the broader understanding of population dynamics, and the aforementioned recommendations pave the way for more comprehensive analyses that could inform public policy and healthcare strategies.

# Works Cited

Cho, H. (2020). *Ambient temperature, birth rate, and birth outcomes: Evidence from South Korea*. Retrieved from PubMed Central: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7089350/