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DATA 4010
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https://drewdimas.shinyapps.io/dimas_final/

Assessing Low-Income Families in Philadelphia Middle & High Schools

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Application Usage

❖ **Home Page**
  ➢ Introductory page with the title that specifies that the data being analyzed is for Philadelphia Middle & High Schools only.
❖ **Mapping Philly Data**
  ➢ Interactive map of Philadelphia, divided by zip codes. The map shows a legend with corresponding colors depicting Low-Income Family percentages.
❖ **Charts**
  ➢ The area of interest drop-down menu on the top left of the charts allows users to choose the y-axis shown on both plots.
  ➢ Interactive Plot 1 (Left) has one dot per zip code, and users can hover over the dot to identify the zip code and its values.
  ➢ Interactive Plot 2 (Right) shows the trend of the selected y-axis versus Low-Income families.
❖ **Raw Data**
  ➢ Data table showing all data accessed by the map and charts.
  ➢ Users can search the table for specific data such as zip codes.
❖ **Data Guide**
  ➢ Tab on the top right of the application that opens up a popup with all data variable descriptions.
  ➢ Users can click outside of the box to return to the application.

Data Analysis

❖ **Map**
  ➢ Upon initial observation, it becomes apparent that the areas with the highest poverty rates are predominantly concentrated in central Philadelphia, with neighboring zip codes sharing borders. However, two exceptions can be found on the south side, specifically in zip codes 19142 and 19148. It is worth noting that there are no instances of green zones, indicating the absence of areas where low-income families make up less than 40 percent of the population.
❖ **Charts**
  ➢ **Race Assessment**
    ■ **African-American** students, as depicted in Plot 1, have the highest percentages in areas with low-income families ranging from 80% to 90%. In Plot 2, there is a steady increase from 48% to 82%, followed by a sharp decline.
    ■ **White** students, observed in Plot 1, exhibit the highest percentages in areas of low-income families ranging from 48% to 60%. Plot 2 shows a

consistent decline along the Low-Income axis, starting at 50% and
extending to 84%. Subsequently, there is a stable trend from 84% to 91%.

- **Asian** students, depicted in Plot 1, demonstrate the highest concentration
  in areas with low-income families ranging from 48% to 70%. Notably,
  there is an outlier in zip code 19148 where the highest percentage of
  Asian students is found, accompanied by an 81% rating of low-income
  families. In Plot 2, there is a gradual decline from 48% to 91% along the
  Low-Income axis.
- **Latino** students, as seen in Plot 1, have the two highest concentrations in
  areas with low-income families above 90%, with additional significant
  clusters between 80% and 90%. Plot 2 showcases a very slow increase
  from 48% to 81% on the Low-Income axis, followed by a rapid rise to
  91%.
- **Other races**, represented in Plot 1, exhibit the highest concentration of a
  low-income family percentage at 63%. Plot 2 displays a steady decrease
  from 48% to 91% along the Low-Income axis. Other races account for
  percentages ranging from 0.14% to 3.7%.

➢ **Crime/Suspensions**
- **Drugs**: The trend of drug-related incidents shows fluctuations but an
  overall increase.
- **Morals:** The trend of incidents related to moral issues exhibits a slow
  increase.
- **Assaults:** The trend of assault-related incidents gradually increases.
- **Weapons:** The trend of incidents involving weapons shows a later
  increase.
- **Thefts:** The trend of theft-related incidents fluctuates but shows an
  overall increase.
- **Total Suspensions:** The trend of total suspension cases experiences an
  initial strong increase followed by a gradual rise.

➢ **Other Factors**
- **Attendance:** The trend of attendance shows a steady pattern with a slight
  decrease.
- **Enrollment:** The trend of enrollment demonstrates fluctuations but an
  overall increase.
- **Average Teacher Salary:** The trend of average teacher salary shows a
  steady pattern with minimal increase or decrease.
- **English Second Language:** The trend of English second language
  shows a slow initial increase followed by a rapid rise.
- **Special Education:** The trend of special education shows a strong
  increase.
- **Gifted Education:** The trend of gifted education shows a strong
  decrease.

Conclusion

The data analysis reveals significant disparities among different racial groups in terms of low-income families. African-American and Latino students tend to have the highest percentages in areas with low-income families, followed by Asian students. White students, on the other hand, typically have lower percentages in these areas. Crime and total suspensions, including incidents related to drugs, show a general increase, suggesting a possible correlation between higher crime rates and low-income families.

Overall, the findings underscore the importance of addressing racial disparities and providing support to students from low-income families. The analysis also emphasizes the need to address various factors that influence educational outcomes and well-being, including crime rates, attendance, enrollment numbers, and educational support services.