

SAS® GLOBAL FORUM 2017

April 2 – 5 | Orlando, FL

**The Effects of Socio-Economic, Demographic
Variables on US Mortality using SAS Visual Analytics**
National Longitudinal Mortality Study (PUMS 2005)
Catherine Loveless-Schmitt

USERS PROGRAM



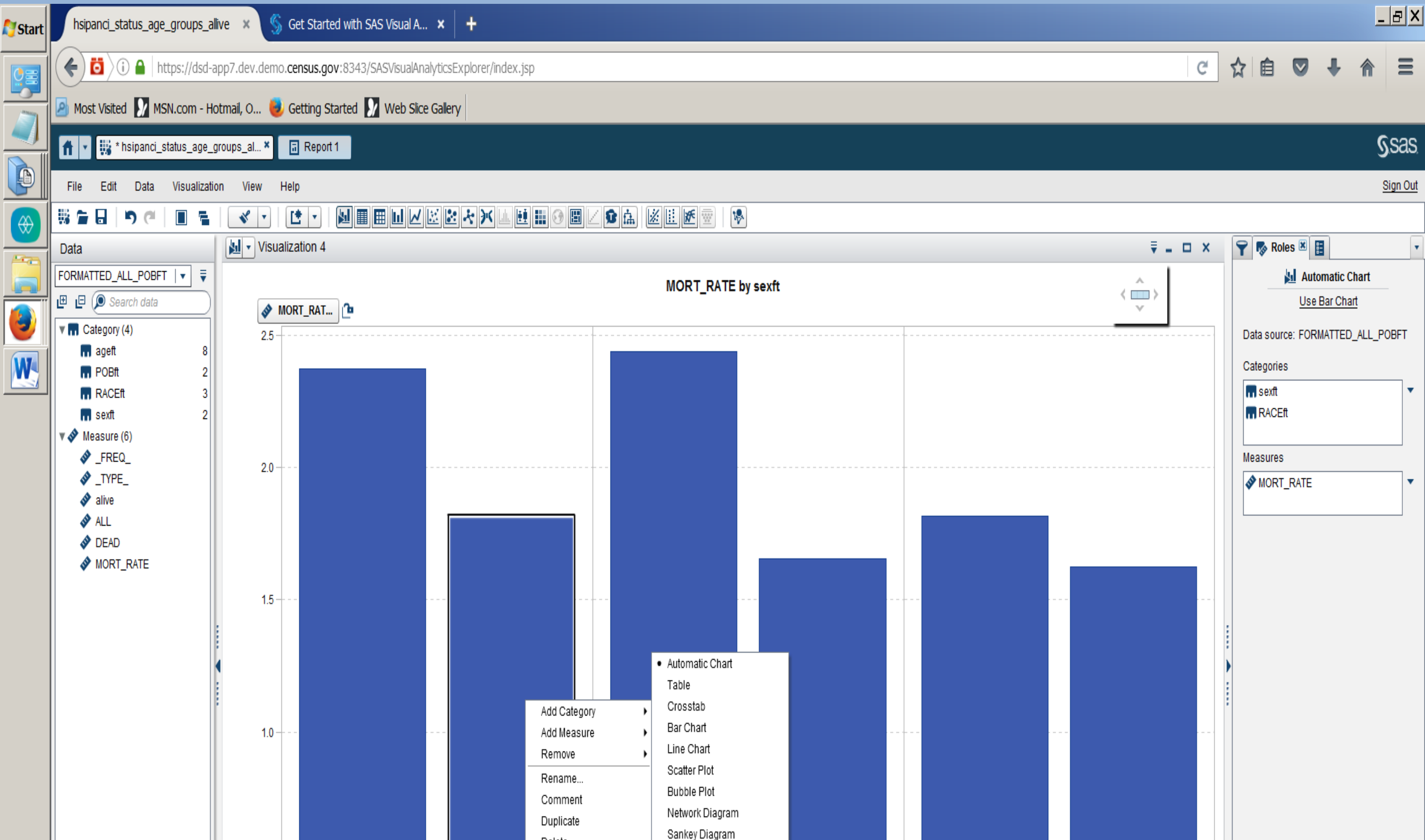
The Effects of Socio-Economic, Demographic Variables on US Mortality using SAS Visual Analytics :NLMS PUMS

Catherine Loveless-Schmitt

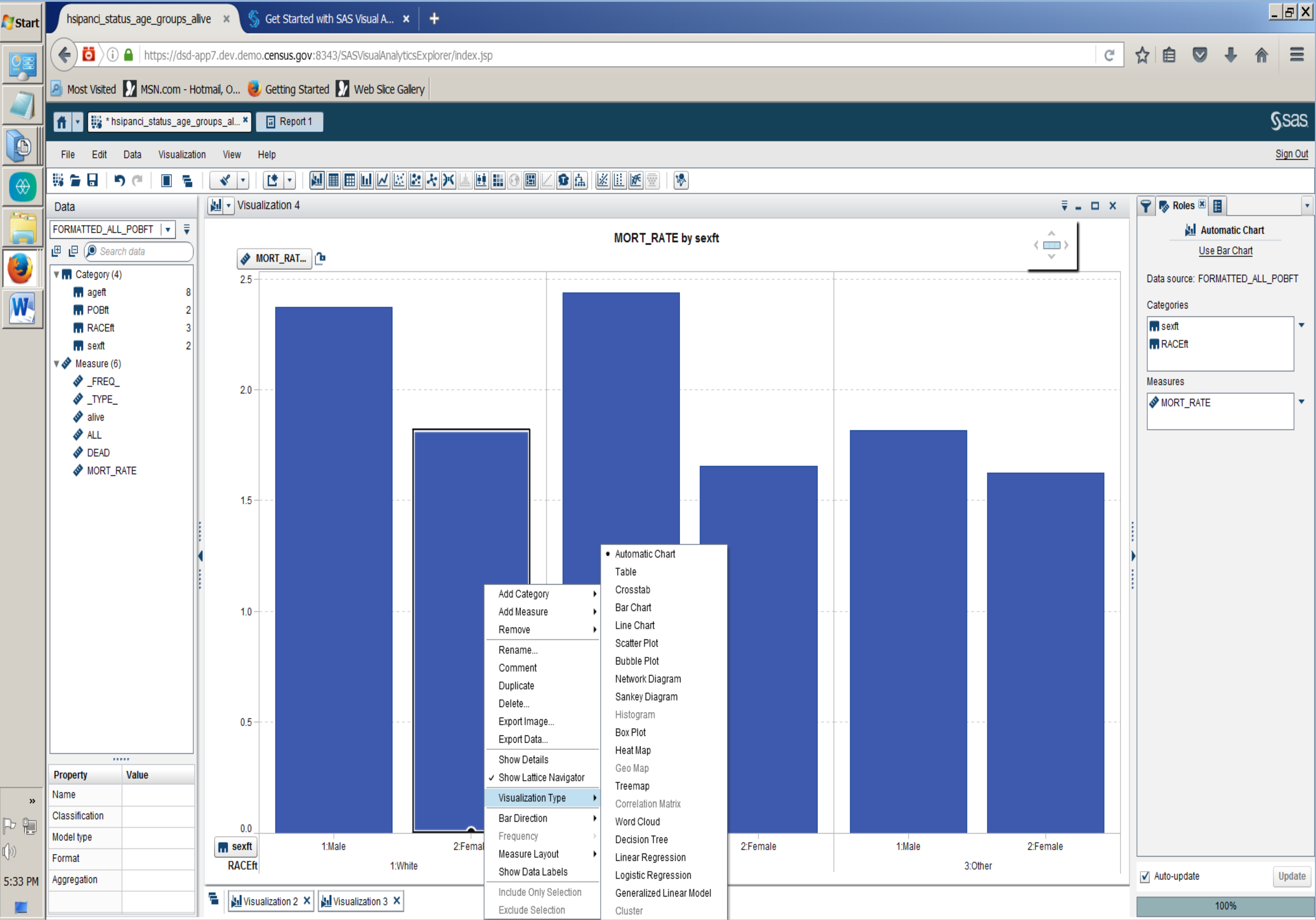
ABSTRACT

The NLMS is a database developed for the purpose of studying the effects of demographic and socio-economic characteristics on differentials in US mortality rates. The NLMS is based on a multistage stratified sample of the non-institutionalized population of the United States. The NLMS consists of US Census Bureau data from Current Population Survey (CPS) and a subset of the 1980 Census, combined with state-based death certificate information to identify mortality status and cause of death. The file contains a subset of the 39 NLMS cohorts included in the full NLMS that can be followed prospectively for 11 years. The file contains approximately 1,222,000 records with over 112,000 identified mortality cases. This presentation demonstrates the differential effects of mortality rates in visual displays.

METHOD: Load the NLMS into SAS VA LAZR

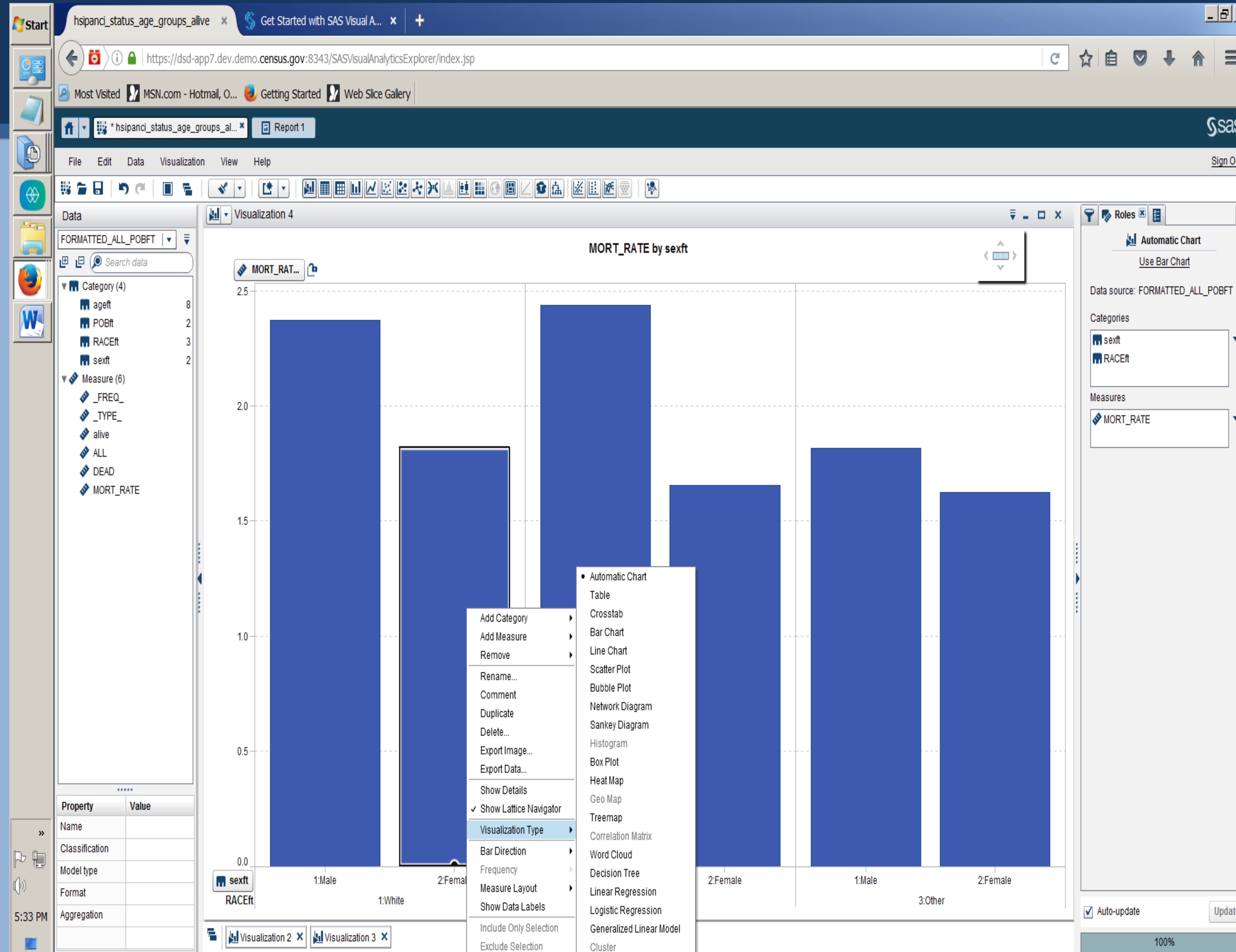


RESSULTS



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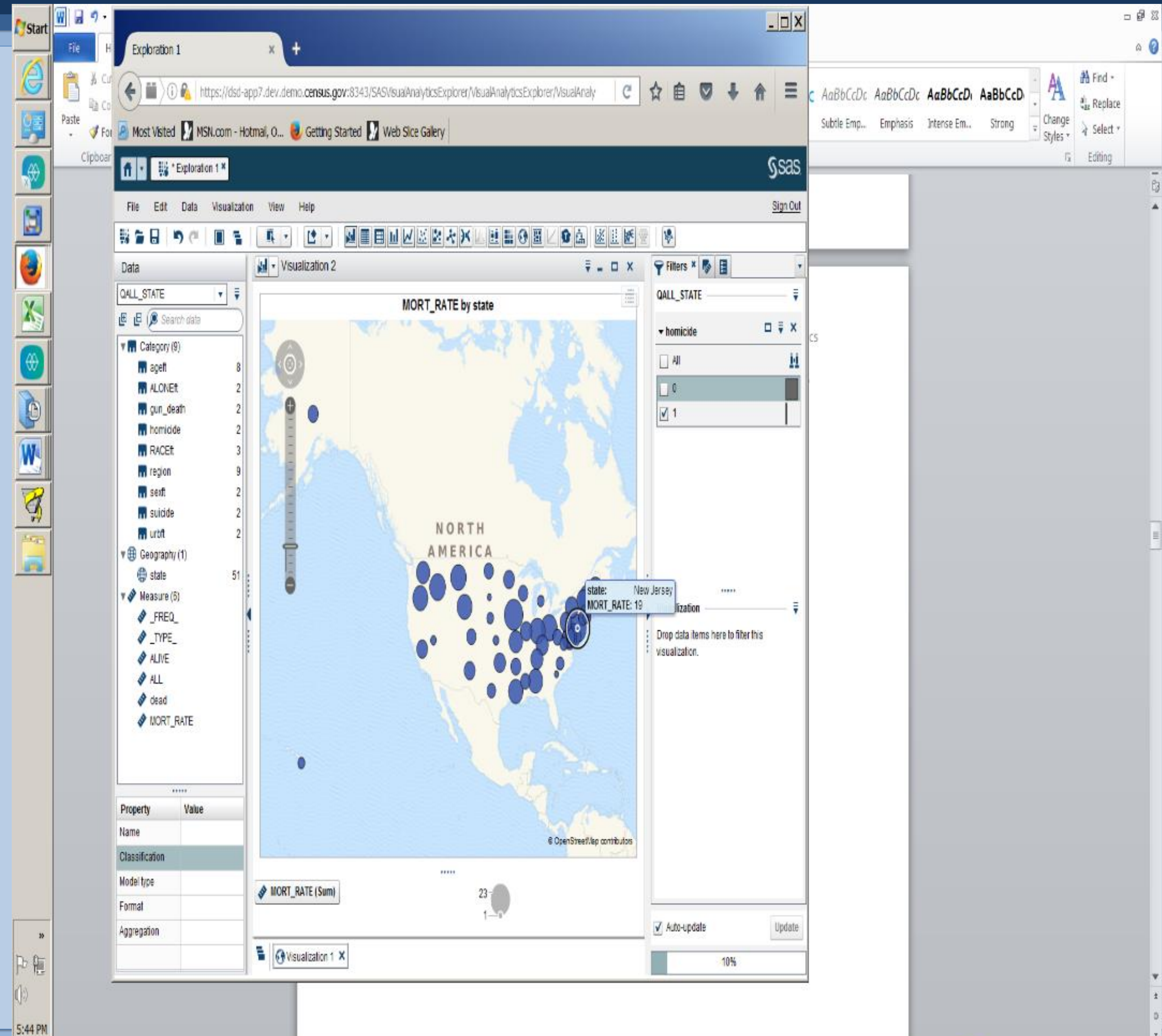
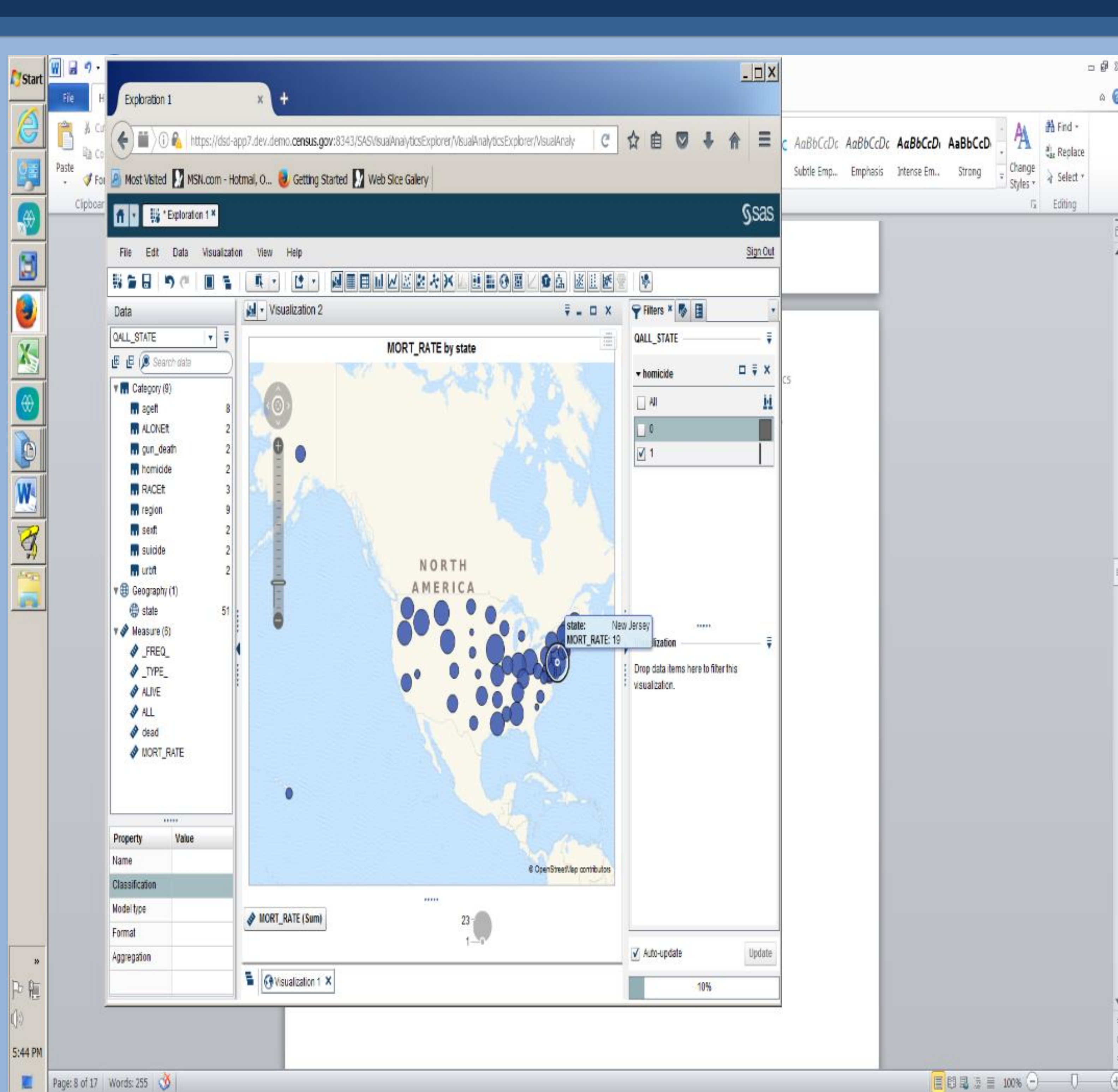


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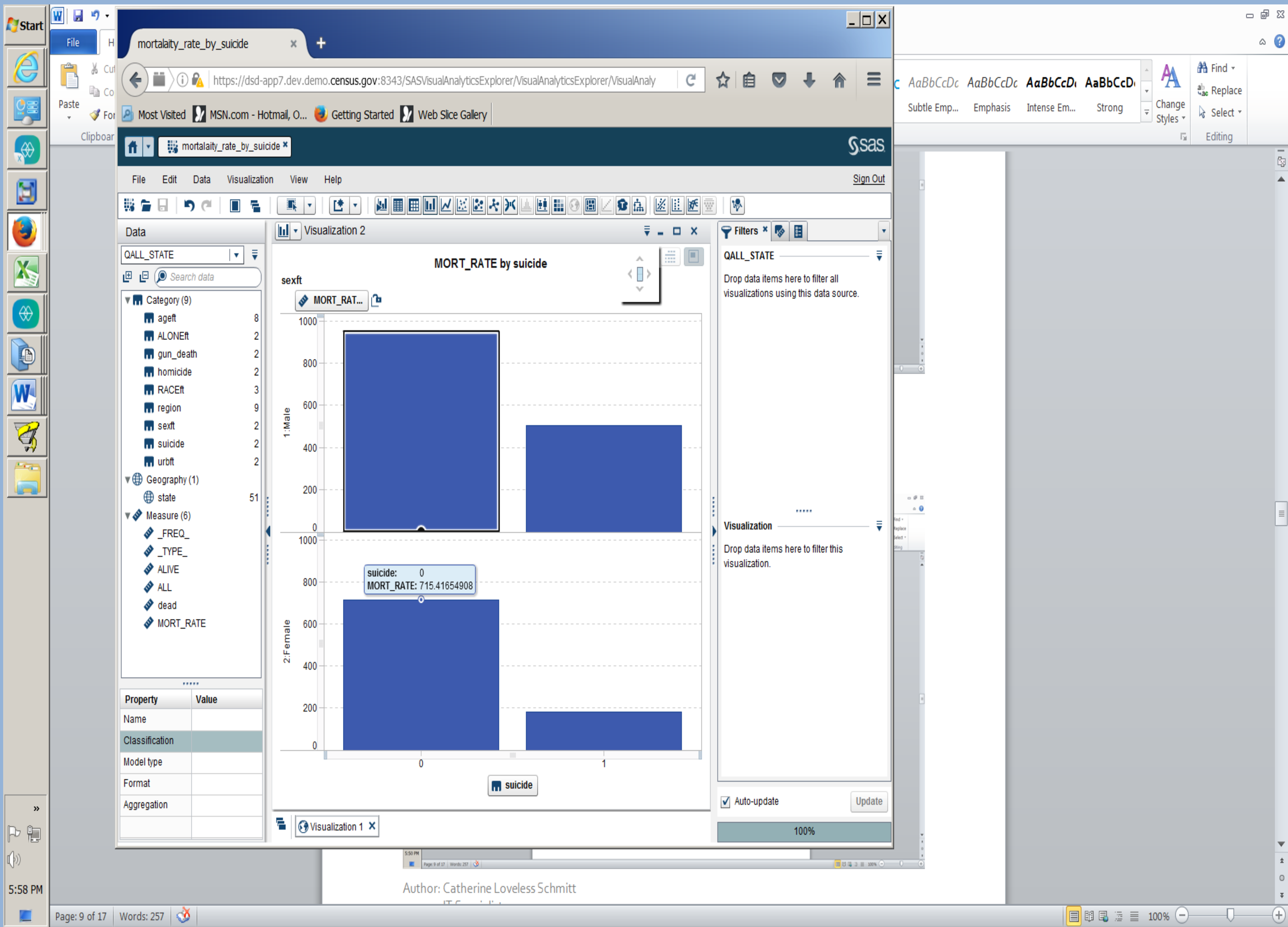
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Gun deaths throughout the US



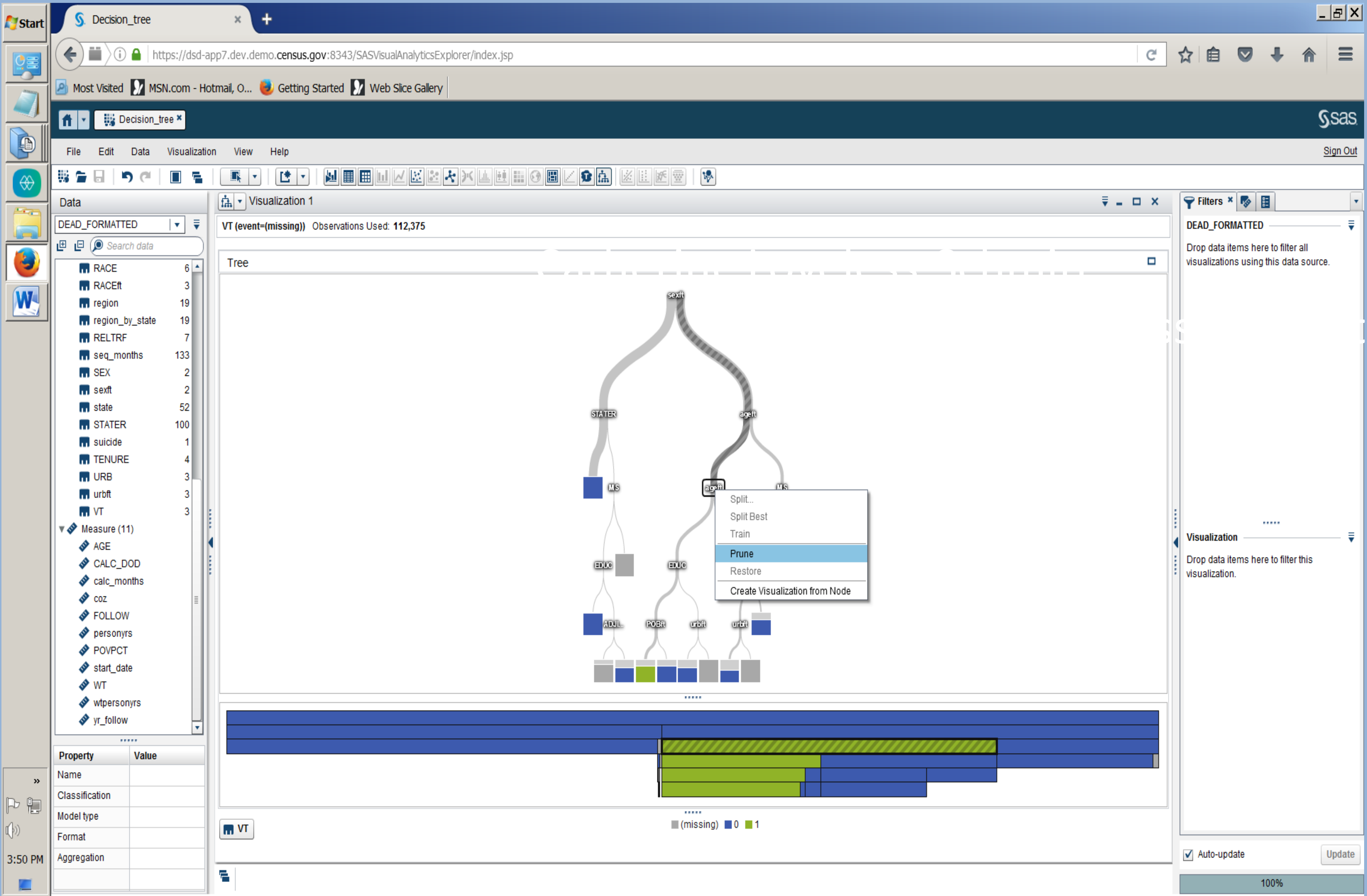
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Decision Tree Analysis

A decision tree analysis of all 112,000 cases of death records was created using all possible categories related to mortality. Those displayed first into the decision tree have the strongest effect, therefore this is the best predictor of mortality.

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The screenshot displays a web browser window with the URL support.sas.com/training/tutorial/va73/exploration-basics.html. The page is titled "Get Started with SAS Visual Analytics Explorer: Exploration Basics" and includes a video player showing a tutorial. The video player interface includes a progress bar at 14:57 / 15:49. The tutorial content shows a SAS Visual Analytics interface with a data table, a bar chart titled "Total Product Sales, Average Product Sales by Month", and a correlation matrix. The video player has a "More Information" section with a link to "For more tutorials, visit support.sas.com/training/tutorial/". It also includes a "Share Feedback" section with a link to "Rate this video." and a "Technical Requirements" section stating "Videos require Adobe Flash Player (version 10 or higher)." and "If you have difficulty viewing a video, please see additional technical requirements." The footer of the page contains links for "Connect", "Get Help", and "Account Management".

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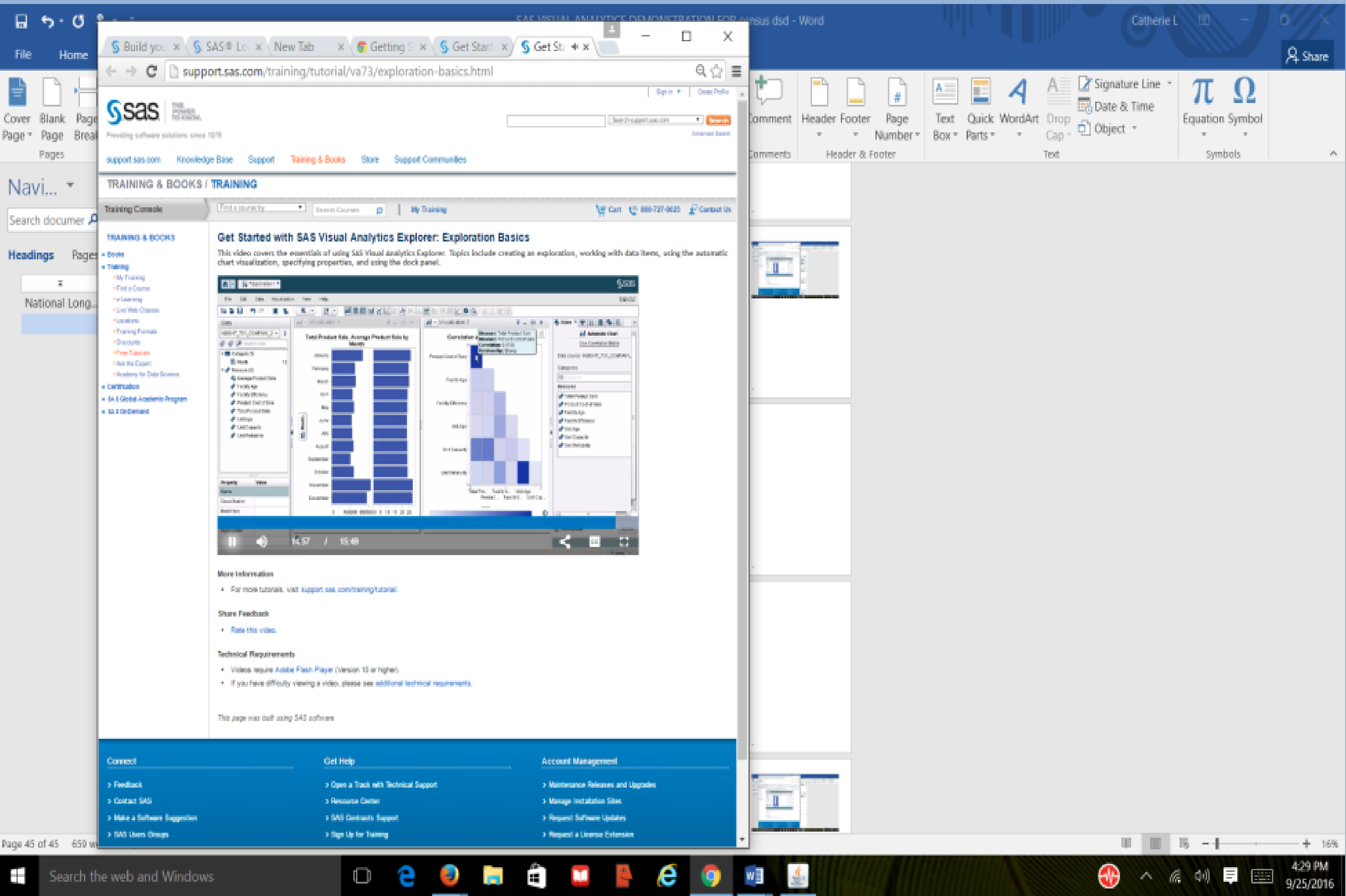
Search the web and Windows

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RESULTS



CONCLUSIONS

This is a demonstration of how to effectively review and check data to demonstrate to use visualizations combined with proper statistical techniques for better data analysis.

Proposals for future use

The advantage of a process such as SAS Visual Analytics is that SAS Visual Analytics is so effective at manipulating large datasets that outliers can be found using tools such as: data mining, machine learning, box and whiskers; correlation Matrix; linear/logistical regression(s). Edits of data that are encoded incorrectly and not found at the onset are costly. Likewise, if there is problem with a Field Representative: incorrect, invalid responses, poorly skilled or simply poorly trained.

Data visualizations are pretty pictures but it is necessary to tell as story and the inclusion of statistic makes it incumbent on the data viz expert to understand to make sure that it tells an accurate story. Here I have demonstrated how to effectively review and check data to demonstrate how to use visualizations combined with proper statistical techniques.

REFERENCES

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