

Social Housing in Albania: Using Shiny to enhance visualization and interpretation of study key findings

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Received: 25 December 2021 , Accepted: 31 January 2022

Published online: 13 March 2022

Abstract: The problem that everybody unfamiliar with data analysis, come across from time to time, is to read statistical research and understand key findings. In this study, an intuitive approach is offered on how to fill this gap. It has been discussed what the advantages of using Shiny platform dashboards are when they are used to visualize data and study findings. An example of this dashboard is presented in this study, visualizing a previously written by author, statistical research about Social Housing in Albania.

Keywords: R Language, Shiny, Dashboard, Social Housing, Visualization.

1 Introduction

A picture is worth a thousand words. This famous expression is even more meaningful, when it comes to data analysis and interpretation of key findings. When we explain a statistical study, we need to explain background for the study, the way data are collected, the source for this data, how they were prepared for the analysis, methods for analyzing them and of course we need to interpret results. Most of times, one picture is not enough, and sometimes just pictures are not enough.

The problem become even more frustrating when you need to explain your statistical research to people unfamiliar with data analysis. Unfortunately, this is a common problem for the researchers and fortunately there is a simple and elegant solution to fill this gap. The solution we propose in this research is using dashboard. Inside dashboard statistics and visualizations are combined intuitively, they summarize the research ideas, hiding unimportant details, focusing on key finding and play everything in the background, when the case is of combining multiple sources of data.

Dashboards tell the story in the exact way the author wants it to be told. They can be organized in different parts, each of them hosting a different part of research not necessarily related to the others or vice-versa. An example of this dashboard is presented in this study, visualizing a previously written by author, statistical research about Social Housing in Albania. Social Housing in Albania research identifies the situation of Social Housing in Albania, problems and challenges

2 Materials and methods

The Social Housing in Albania dashboard has been developed using the Shiny package, version 1.7.1. Shiny, is an open-source and very popular R library, which makes possible for the research-create intuitive, interactive and beautiful looking dashboards. With Shiny researcher can share data and analysis with minimal effort. Other R libraries, needed for adding functionality and power to Social Housing in Albania dashboard include readr for importing data, tidyverse for data wrangling, creation of plots and analysis, shinydashboardplus for a dashboard starting template, shinycssloaders for

integrating CSS in application, kableExtra for beautiful tables, leaflet for creating maps and plotly for adding interactivity to plots. The application is freely available online at at <https://endriraco.shinyapps.io/SocialHousingForm>. The language of dashboard is Albanian and all dashboard data are downloadable as csv or excel files. The application is simple to use, organized in tabs and menus, offering sliders and drop-down menus to make easier for the user filtering of needed information.

3 Results and discussions

The dashboard homepage is shown in figure 1. In the right there are tabs for each logical part of the survey. During development of dashboard was founded intuitive to separate the logic of survey in three parts: data exploration, visualization and key findings. Homepage corresponds to the data exploration tab. Buttons under the tabs make possible download of data in different formats or printing them. Data table shows the data by municipality, category and programme with possibility of real-time filtering.

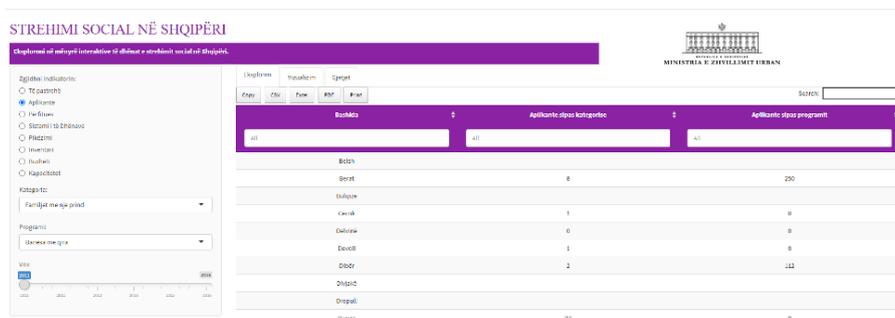


Fig. 1

The radio buttons widget in the left allows user to select the indicator of interest. There are two select boxes Category and Programme which make possible selection of social housing data for population category of interest or filter data by the programme implemented by government and municipalities.

In the second tab all data shown numerically in data exploration are illustrated in plots and maps combining GIS possibilities in R language. Figure 2 illustrates number of homeless people for each of 61 municipalities in Albania, while Figure 3 illustrates government programme beneficiaries for each municipality. Third part of dashboard illustrates key findings of statistical research. Key findings are shown as text. This strategy was chosen intentionally in case dashboard visitor is looking for a piece of information and doesn't want to spend time navigating around application. The key findings application part is shown in Figure 4. The Social Housing in Albania is dashboard that illustrates in a straight-forward way how to fill a gap, presenting a set of useful tools and technologies for visualization of statistical research key findings intuitively and interactively. The dashboard offers an approach toward a better understanding of how research can make their data talk and share their work worldwide in far easier way. Dashboards like the one presented in this research makes statistical studies easier to understand from a wider range of people being them statisticians or not. Shiny platform is the technology of choice in this study, because of its excellent characteristics: cost-free, open-source, easiness of use.

Competing interests

The authors declare that they have no competing interests.

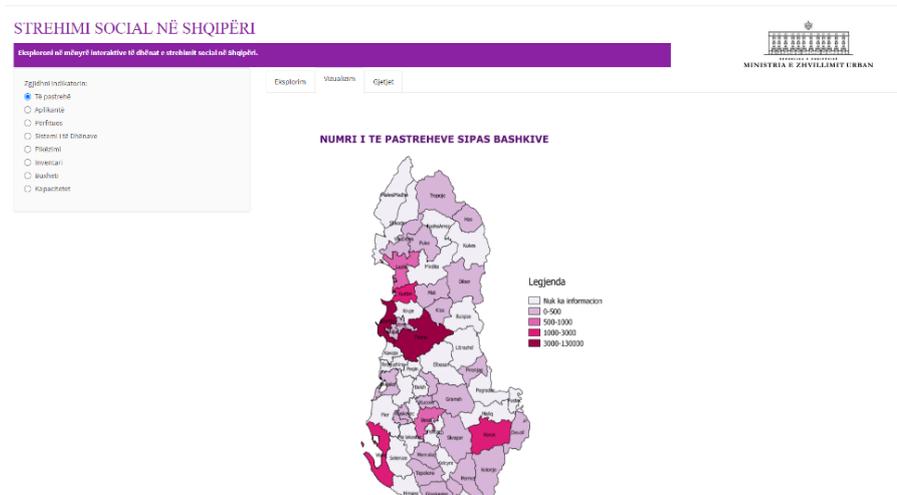


Fig. 2

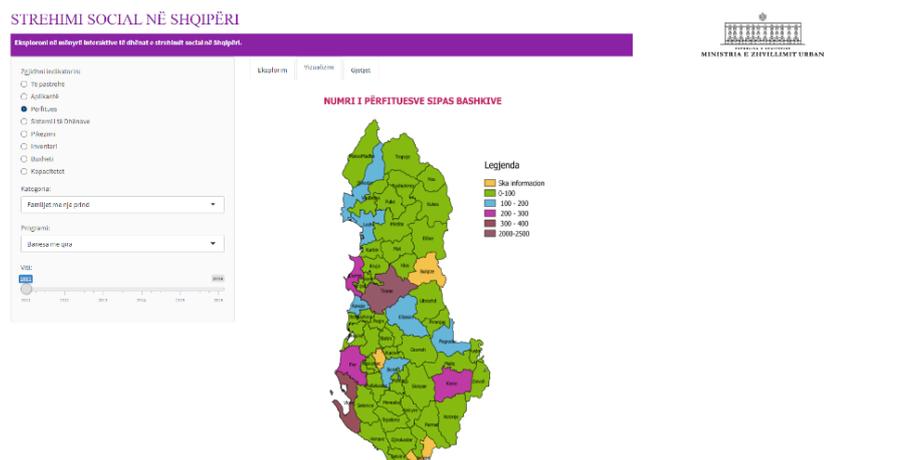


Fig. 3

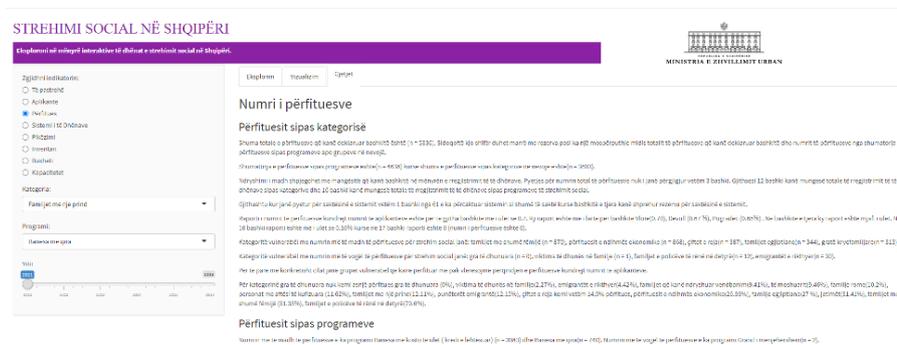


Fig. 4

Authors' contributions

All authors have contributed to all parts of the article. All authors read and approved the final manuscript.

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