

Data Visualization and Web Management for Housing and Fertility Research

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Introduction

Professor Sarah Brauner-Otto is conducting research on the relationship between the housing context and fertility in low-fertility countries. The research examines the association between 16 country-level indicators of housing context and fertility in 38 countries from 1945 to 2014.

The project has three main objectives:

1. a cross-country dataset of housing context characteristics.
2. the identification of how country-level factors that influence housing availability and affordability are inter-related;
3. the first macro-level empirical analysis of the relationship between housing context and fertility.

The on-line, public database of housing context characteristics will interest researchers and policy makers studying the effects of housing on other areas of behavior, such as marriage and labor market participation.

Background

Low fertility rates vary greatly among low fertility countries. Of several institutional factors likely to affect low fertility, housing has received very little scholarly attention. Yet moving out of the parental home is an important step in asserting independence and, for most young adults, a necessary precursor to having children. Further, there is great variability in how the process of establishing an independent home unfolds for young people, country to country, in part because national housing and related-financial contexts also vary. This suggests that housing may be a major factor in explaining cross-country fertility variation.

The general hypothesis of the project is that **the easier it is for young adults to rent or purchase their own dwelling unit, the younger the age at first birth, and by extension the higher the level of childbearing.**

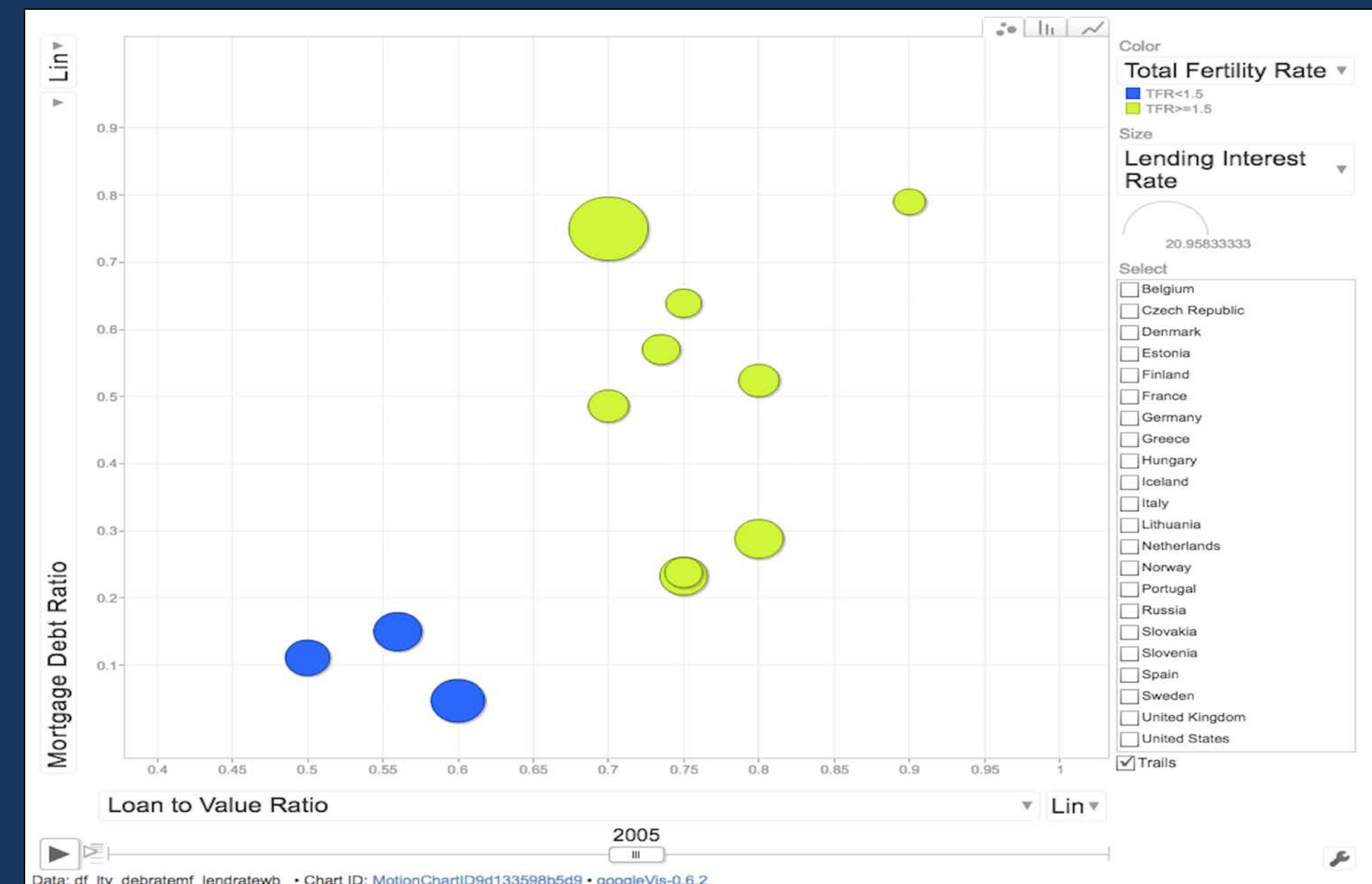
Methodology

I worked on the first objective of the project, which was to set up a cross-country dataset of housing context characteristics.

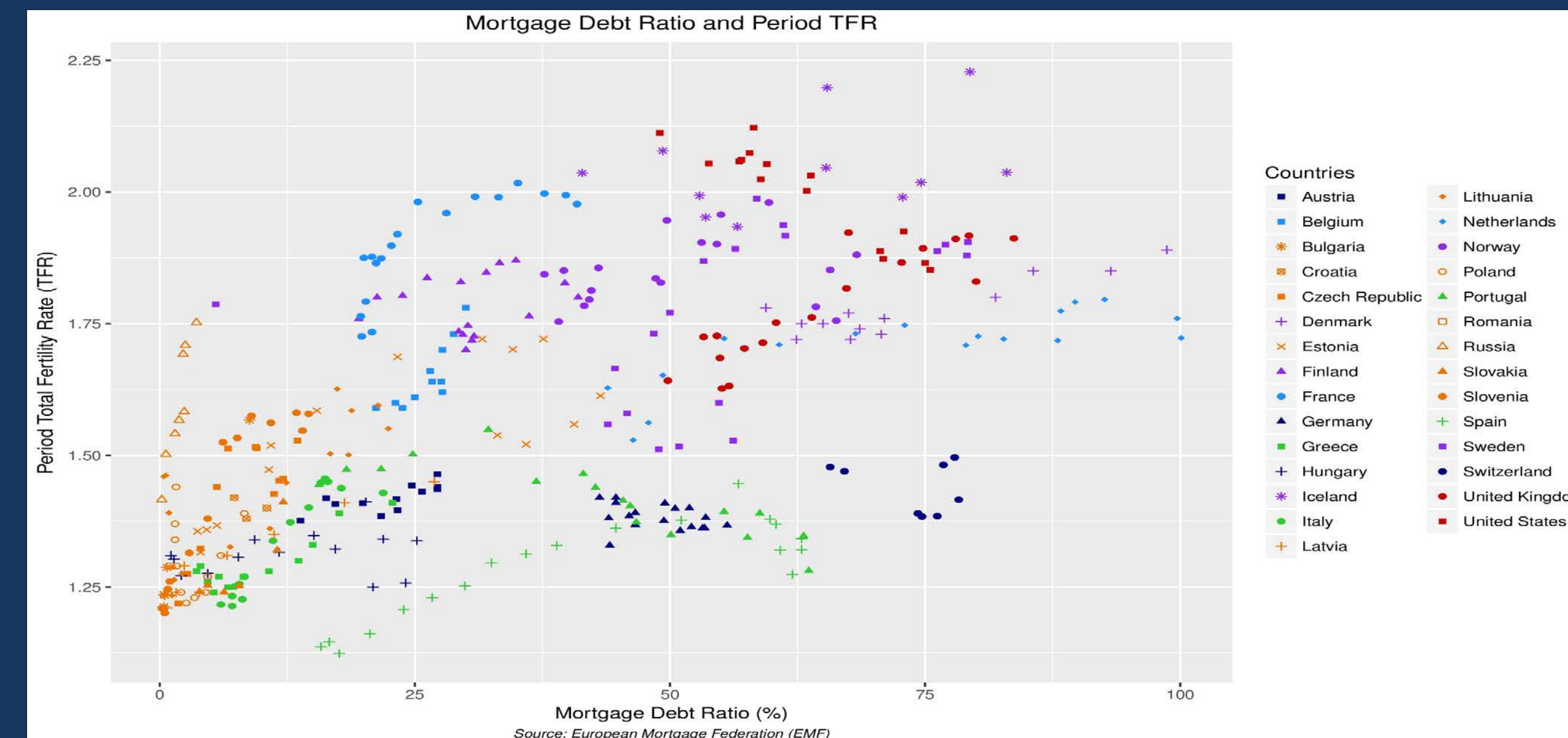
1. Data wrangling using R: Reformatting indicator datasets from multiple sources through statistical programming in order to make them publicly available.
2. Exploratory Data Analysis: Data visualization of individual housing indicators as well as their relationships across time in R and ArcGIS.
3. Web development: Creating a website for sharing the housing data on WordPress. HoMe: Housing Metrics Database is the official website of the research project, and is a free source of multi-country housing data and analysis.

RESULTS

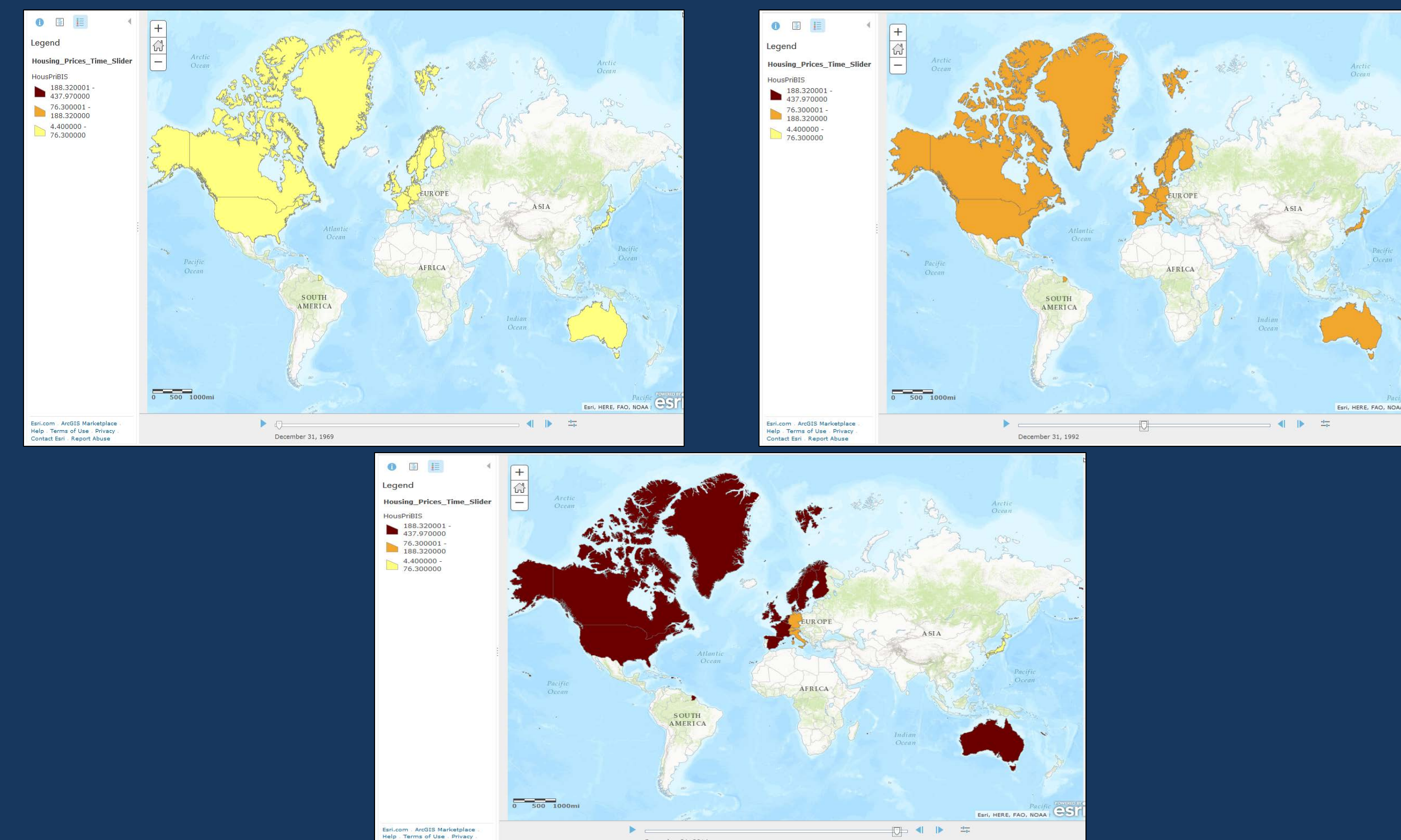
Mortgage Debt to GDP Ratio, Loan to Value Ratio and Total Fertility Rate¹



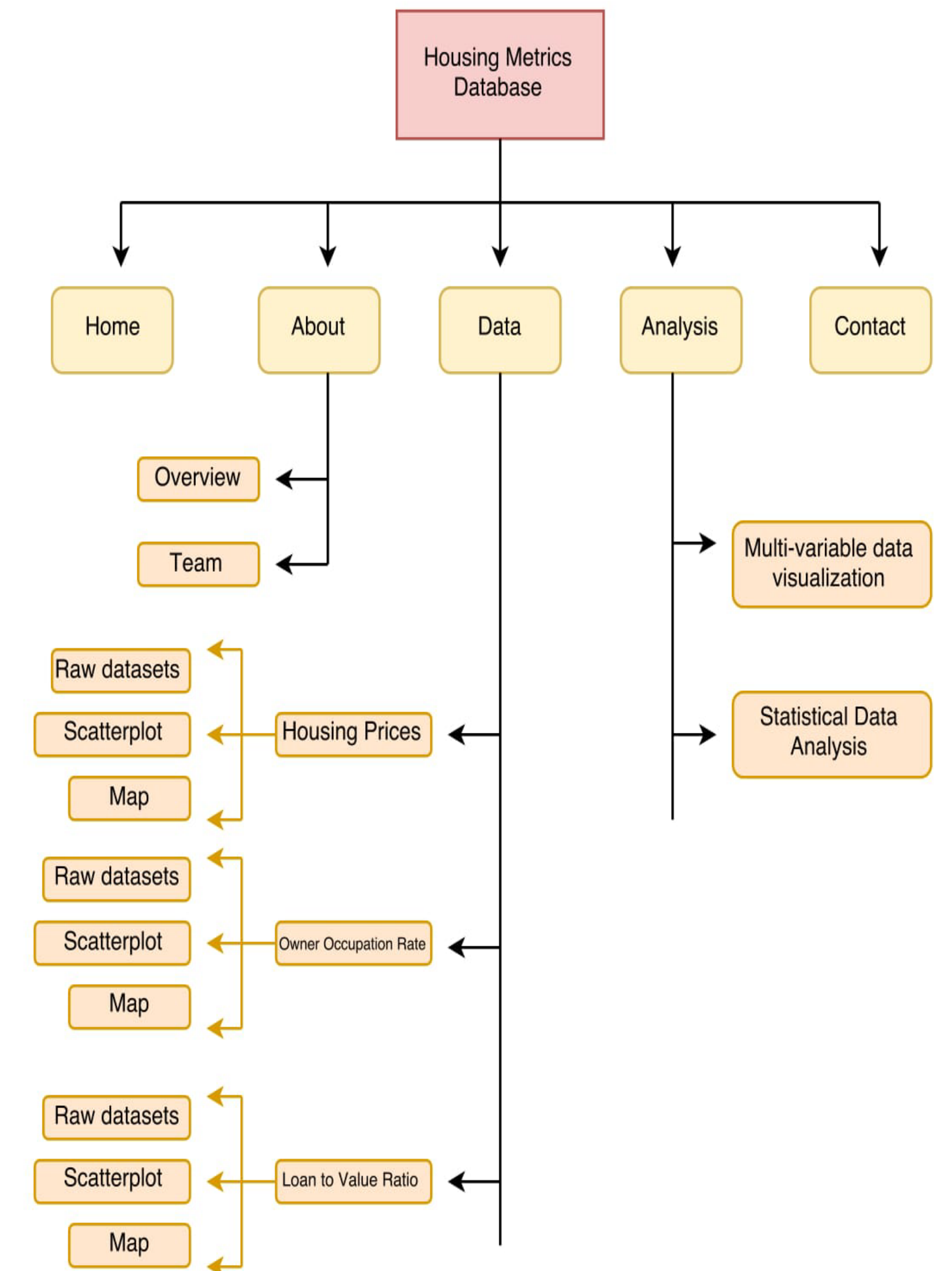
Mortgage Debt to GDP Ratio and Total Fertility Rate²



Housing Prices (1969, 1992, 2014)³



Website



References

1. European Central Bank. 2009. *Housing Finance in the Euro Area*. Task Force of the Monetary Policy Committee of the European System of Central Banks: Occasional Paper Series, no. 101.
2. European Mortgage Federation. 2003-2014. *Hypostat 2003-2014: A Review of Europe's Mortgage and Housing Markets*. EMF: Brussels.
3. "Full Datasets." Bank for International Settlements. http://www.bis.org/statistics/full_data_sets.htm

