**1- Description**

This repository contains code to reproduce results in E. Bura, L. Forzani, R. Garcia Arancibia, P. Llop and D. Tomassi, “Sufficient Reductions in Regression with Mixed Predictors” (submitted).

The main codes for the proposed method are written Matlab. Nevertheless, some comparisons with other methods require running scripts in R. Indications to reproduce results reported in the manuscript are detailed below.

**2- Organization**

The code is organized in several folders:

**./Data-Analysis**: here are the scripts to reproduce the examples presented in Section 6: Data Analyses.

**./Figures**: here are the scripts to reproduce Figures 1 and 2 presented in Section 5: Simulation Studies.

**./Internal**: here are the procedures and auxiliary functions to actually implement the proposed methods.

**./Main-Functions**: here are the functions which are called to apply the proposed methods.

**./Other-Used-Packages**: here are other tools we take advantage of when implementing and running the code.

**./Simulations**: here are the scripts to reproduce the results reported in Section 5: Simulation Studies.

**./Test-Dimension**: here are the scripts to reproduce results in Table 3 from Section 5.

**3- Usage**

To start using the code, set Matlab’s working directory to the main folder of this package and run

> setpaths.m

This will add paths to all the internal folders so that all the functions and datasets become available.

***Reproducing experiments with synthetic data in Section 5: Simulation Studies***

To reproduce **Figures 1 and 2**, in folder **.\Figures** run the scripts:

> script-Figure-1.R

> script-Figure-2.R

If you want to reproduce the results used in Figure 1, Figure 2, and Table 2 in folder **.\Simulations** run the scripts:

In **.\Simultations\ContinuousPredictors**, run:

> script-to-simulate-ContinuousPredictors-d1.m

> script-to-simulate-ContinuousPredictors-d2.m

In **.\Simultations\BinaryPredictors**, run:

> script-to-simulate-BinaryPredictors-d1.m

> script-to-simulate-BinaryPredictors-d2.m

In **.\Simultations\MixedPredictors**, run:

> script-to-simulate-MixedPredictors-d1.m

> script-to-simulate-MixedPredictors-d2.m

To reproduce results reported in **Table 3**, in folder **.\Test-Dimension** run the scripts:

In **.\Test-Dimension\ContinuousPredictors**, run:

> test-dimension-ContinuousPredictors-d1.m

> test-dimension-ContinuousPredictors-d2.m

In **.\Test-Dimension\BinaryPredictors**, run:

> test-dimension-BinaryPredictors-d1.m

> test-dimension-BinaryPredictors-d2.m

In **.\Test-Dimension\MixedPredictors**, run:

> test-dimension-MixedPredictors-d1.m

> test-dimension-MixedPredictors-d2.m

> test-dimension-Suboptimal.m

To reproduce results reported in **Table 6**, in folder **.\Simultations** run the scripts:

In **.\Simultations\ContinuousPredictors** run:

> script-to-simulate-ContinuousPredictors-d1-NonNormal.m

> script-to-simulate-ContinuousPredictors-d2-NonNormal.m

In **.\Simultations\MixedPredictors**, run:

> script-to-simulate-MixedPredictors-d1-NonNormal.m

> script-to-simulate-MixedPredictors-d2-NonNormal.m

***Reproducing experiments with real data***

To reproduce results reported in **Table 4**, in folder **.\Data-Analysis\Example1-Krzanowski-DataSets** run the scripts:

> run-krzanowski-PCA.R

> run-krzanowski-PFC.R

To reproduce **Figures 3, 4 and 5**, in folder **.\Data-Analysis\Example2-Governance-Index** run the script:

> script-for-Figures-3-4-5.m

If you want to obtain the Composite Governance indices from different methodologies, used in Figures 3, 4 and 5 in folder **.\Data-Analysis\Example2-Governance-Index** run scripts:

> script-for-PCAmixIndex.R

> script-for-PFC-Optimal-Suboptimal-Indices.m

To reproduce results reported in **Table 5**, folder **.\Data-Analysis\Example2-Governance-Index** run script:

> script-for-Table5.R