

## **SUPPLEMENT TO: “Inference in Additively Separable Models with a High-Dimensional Set of Conditioning Variables”**

Replication Instructions

April 6, 2020

This document provides replication instructions for calculations in the main paper, “Inference in Additively Separable Models with a High-Dimensional Set of Conditioning Variables.” This document contains the following sections.

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*Simulation replication directory*

### **List of files provided**

The following files are included in the replication directory.

```
Add_Sep_Simulation_2018_blanket_vs_simple_L2n_altspline.m
Add_Sep_Simulation_2018_Lnover2.m
Add_Sep_Simulation_2018_L2n.m
Add_Sep_Simulation_2018_blanket_vs_simple_Lnover2_altspline.m
nonpar_simple.m
TU_approximation_compare.m
lasso_hetero.m
generate_p.m
bspline1.m
stepwisefit_hetero.m
ave_deriv.m
```

### **Description and replication instruction**

To replicate Figure 2, run `Add_Sep_Simulation_2018_Lnover2.m`. To replicate Figure 3, run `Add_Sep_Simulation_2018_L2n.m`. To replicate Figure 4, run `Add_Sep_Simulation_2018_blanket_vs_simple_Lnover2_altspline.m`. To replicate Figure 5, run `Add_Sep_Simulation_2018_blanket_vs_simple_L2n_altspline.m`.

All calculations reported in the main paper were performed in Matlab2016a. All files above should be included in the working directory. For information on which scripts require which inputs, see file descriptions above, or more detailed comments within the files.

### *ACT example replication directory*

#### **List of files provided**

The following files are included in the replication directory.

```
ACT_Example_From_Grid.m
AddSep_ACT_2.do
ave_deriv_ACT.m
act_stata2mat_data_extraction.m
bspline1.m
collect_lasso_result.m
generate_p_ACT.m
generate_p_fixed_K.m
get_lasso_values_or.m
interaction_expansion_act.m
lasso_hetero_large.m
myspline.m
prepareACTdata.m
runAllOnInstance.m
```

#### **Description and replication instruction**

Create 99data.dta by following the instructions in Bettinger, Evans and Pope (2013). Run AddSep\_ACT\_2.do in Stata to replicate Table 1 and to create ACT\_99\_data\_to\_csv.csv.

Run act\_stata2mat\_data\_extraction.m to convert data to Matlab format. Note act\_stata2mat\_data\_extraction.m is a Matlab function which requires inputs (1) an input file referred which should be set to ACT\_99\_data\_to\_csv.csv (2) An output file name which should be set to act\_data.mat. This script outputs a file act\_data.mat to the working directory.

Run prepareACTdata.m. Note prepareACTdata.m is a Matlab function which takes as input (1) a source file and (2) a dataset. Set the source file to ACT\_99\_data\_to\_csv.csv. Set the dataset to act\_data.mat. This function creates an output file ws\_prepro\_finished.mat.

Run runAllOnInstance.m. This is a Matlab function which takes inputs (1) an input file and (2) an output directory. The input file should be set to ws\_prepro\_finished.mat. Note that the file result\_lasso\_iter\_1-21799.mat will be output in the specified directory.

Run `ACT_Example_From_Grid.m` to replicate Table 2. This file assumes the files `act_data.mat` and `result_lasso_iter_1-21799.mat` have already been created by the above instructions.

The computations in the current paper were performed using Matlab 2018b.

### **References**

- E. P. Bettinger, B. J. Evans, and D. G. Pope. Improving college performance and retention the easy way: Unpacking the ACT exam. *American Economic Journal: Economic Policy*, 5(2):26–52, 2013.