Replication Instructions for:
Valuing Time-Varying Attributes using the Hedonic Model: When is a Dynamic Approach Necessary?
Kelly C. Bishop and Alvin D. Murphy

Code:

Data cleaning and preparation is conducted in Stata (StataMP 13.1) using the following do files:

- Prepare_Data1.do: This file prepares the data used in the time-series regressions for violent crime, murder, and TSP.
- Prepare_Data2.do: This file prepares the data used in the housing-price regressions.
- cpi.do: This file deflates prices.

Estimation is conducted in Matlab (Matlab R2014b) using the following files:

- master_restat.m: This file runs all of the Matlab code. It calls the .m files listed below.
- read_data_from_stata.m: This file loads data from Stata and saves it in Matlab format.
- estimate.m: This file estimates the violent-crime model.
- matrix2latex_a2.m: This file is used to compile the output tables.
- bias_comp.m: This file calculates the difference between the estimates from the static model and forward-looking model.
- Robustness_checks.m: This file conducts robustness checks using following five .m files.
    - robust_AR2.m: This file estimates the model using AR(2).
    - robust_re.m: This file estimates the model using a form of adaptive expectations.
    - robust_tprob.m: This file estimates the model using the added control of PM10.
    - robust_T_beta.m: This file estimates the model under alternative T and beta.
    - robust_log.m: This file estimates the model under log utility.
- gammafuncAR2.m: This file calculates the adjustment term under AR(2).
- gammafunc_se.m: This file calculates the adjustment term under AR(1) with standard errors.
- gammafunc.m: This file calculates the adjustment term under AR(1).
- data_figs_vc.m: This file creates the data figures for violent crime.
- bay_area_figs.m: This file creates the price figures for violent crime.
- bootstrap.m: This file conducts the bootstrap for the violent crime model.
- Robustness_checks_b.m: This file conducts the robustness checks within the bootstrap and is similar to Robustness_checks.m.
- murder_res.m: This file estimates the homicide model.
- tsp_res.m: This file estimates the TSP model.
- tsp_res_boot.m: This file conducts the bootstrap for the TSP model.
- data_figs_tsp.m: This file creates the data figures for TSP.

Data:

The primary dataset for the violent crime model is sf_long_c.dta. This dataset contains violent-crime data from the RAND California database and PM10 data from the California Air Resources Board for each house/year combination.

The secondary dataset for the violent crime model contains housing transactions data purchased from DataQuick (now CoreLogic).[1] This dataset is proprietary and cannot be provided. However, the housing transactions data may be purchased from CoreLogic at www.corelogic.com.

The dataset for the homicide model is murder.txt. This dataset combines numbers of homicides per county (from the office of the California Attorney General) with year-2000 county populations (from the US Census Bureau).

The dataset for the TSP model is TSPQuicklook.dta. These data come from the EPA's Quicklook files.[2]

Data Dictionaries:

sf_long_c.dta:

property_id	unique property id from Dataquick
year	year
pm10x24nidw	ug/m^3 of PM10 measured by the max. 24-hour average concentration
vcrimerate	violent-crime rate
county	county id

murder.txt:

The nineteen variables are annual (county-level) homicide rates from 1990 to 2008.

TSPQuicklook.dta:

geometricmean	geometric mean of TSP concentrations for that monitor-year combination
observationcount	number of readings for that monitor-year combination
year	year
state	state id
county	county id

[1] These data are merged with mortgage-application information from the Home Mortgage Disclosure Act (HMDA) available at https://www.ffiec.gov/hmda/. The HMDA data are not directly used in this application. However, for comparison with the willingness-to-pay estimates in Bishop and Murphy (2011), we use information on race and income provided by the HMDA merge to cut to the same sample of buyers used in the second stage. These cuts are described in the online Appendix.

[2] We thank Joshua Murphy for directly providing us with access to these data.