SIMON, SCHWARTZ, HUDSON, AND JOHNSON
Do immigration policies stop migrants? A computational model
PNAS

This paper relies on empirical analysis and computational modelling. Both are based on an original survey, Migration Decisions and Policy (MDP), conducted in Jamaica between April and June 2016.

R SCRIPTS

We present separate R scripts for each figure and table from the main body and the supplementary information. Information on which data file is associated with which scripts can be found below.

Main body

Fig2.R uses:

- PNAS_VARILL_FAM_K1.csv
- PNAS_VARILL_LS_K1.csv
- PNAS_VARILL_ST_K1.csv
- PNAS_VARILL_FR_K1.csv
- PNAS_VARILL_NO_K1.csv
- PNAS_VARILL_HS_K1.csv
- PNAS_VARILL_O_K1.csv

Fig3_4.R uses:

- PNAS_FAM_G_K1.csv
- PNAS_LS_G_K1.csv
- census_wages.csv

Fig5.R uses:

- PNAS_VARILL_FAM_K1.csv
- PNAS_VARILL_LS_K1.csv
- PNAS_VARILL_ST_K1.csv
- PNAS_VARILL_FR_K1.csv
- PNAS_VARILL_NO_K1.csv
- PNAS_VARILL_HS_K1.csv
- PNAS_VARILL_O_K1.csv

Supplementary Information

TablesB2_C5.R uses pnas.csv
TableB3.R uses pnas.csv
TableB4.R uses pnas.csv

TableC3.R uses pnas.csv
FigC1.R uses pnas.csv
FigC2.R uses PNAS_VAL.csv
FigC3.R uses PNAS_VAL.csv
FigC4.R uses PNAS_VAL.csv
FigD2_D4.R uses:

- PNAS_VAL_GB.csv
- PNAS_VAL_IJ_NOCHAN.csv
- PNAS_VAL_IJ_CLOSED.csv

FigD5.R uses:

- PNAS_VARILL_FAM_K1.csv
- PNAS_VARILL_LS_K1.csv
- PNAS_VARILL_ST_K1.csv
- PNAS_VARILL_FR_K1.csv
- PNAS_VARILL_NO_K1.csv
- PNAS_VARILL_HS_K1.csv
- PNAS_VARILL_O_K1.csv
- PNAS_VARILL_FAM_K2.csv
- PNAS_VARILL_LS_K2.csv
- PNAS_VARILL_ST_K2.csv
- PNAS_VARILL_FR_K2.csv
- PNAS_VARILL_NO_K2.csv
- PNAS_VARILL_HS_K2.csv
- PNAS_VARILL_O_K2.csv
- PNAS_VARILL_FAM_K3.csv
- PNAS_VARILL_LS_K3.csv
- PNAS_VARILL_ST_K3.csv
- PNAS_VARILL_FR_K3.csv
- PNAS_VARILL_NO_K3.csv
- PNAS_VARILL_HS_K3.csv
- PNAS_VARILL_O_K3.csv

FigD6.R uses:

- PNAS_VARILL_FAM_K1.csv
- PNAS_VARILL_LS_K1.csv
- PNAS_VARILL_ST_K1.csv
- PNAS_VARILL_FR_K1.csv
- PNAS_VARILL_NO_K1.csv
- PNAS_VARILL_HS_K1.csv
- PNAS_VARILL_O_K1.csv
- PNAS_FULL_RESTRICT_K1_LC.csv
- PNAS_IND_ST_RESTRICT_K1_LC.csv
- PNAS_IND_FAM_RESTRICT_K1_LC.csv
- PNAS_NOCHAN_OPEN_K1_LC.csv

- PNAS_IND_HS_RESTRICT_K1_LC.csv
- PNAS_OPEN_K1_LC.csv
- PNAS_IND_LS_RESTRICT_K1_LC.csv

FigF1.R uses:

- PNAS_VARILL_FAM_K1.csv
- PNAS_VARILL_LS_K1.csv
- PNAS_VARILL_ST_K1.csv
- PNAS_VARILL_FR_K1.csv
- PNAS_VARILL_NO_K1.csv
- PNAS_VARILL_HS_K1.csv
- PNAS_VARILL_O_K1.csv

DATA

Empirical Data

1- <pnas.csv> contains all variables from the MDP survey that are necessary for replication. The dataset includes 24 variables for all 1,163 valid respondents.

2- <census_wages.csv> is from the US census. It includes time abroad and annual earnings of Jamaican migrants in the US according to the 2016 American Community Survey (collected by the US Census Bureau).

ABM Output Data- All datasets not listed under the “Empirical Data” heading above are datasets generated from the agent-based model on the Netlogo version 5.3.1 platform. They contain 21 variables related to model settings and migration outputs. Each row is a different simulation repetition with a different randomly generated seed (the exact seed is included as a column). The datasets are shaped ‘wide’, such that each row contains repeated observations for each simulation repetition. The code that generates the variables to be outputted can be found in the ABM “Unauth_ABM.txt”, under the procedure “sample agents”. The in-silico experiment settings and the exact variables outputted can be found under the heading <experiments>.

ABM In-Silico Experiments Guide - The experiments needed to generate the data in the Figures can be found below:

Figures 2 and 5

- *PNAS_IND_FAM_RESTRICT_VARILL_K1 (180 runs)*
- *PNAS_IND_LS_RESTRICT_VARILL_K1 (180 runs)*
- *PNAS_IND_HS_RESTRICT_VARILL_K1 (180 runs)*
- *PNAS_IND_ST_RESTRICT_VARILL_K1 (180 runs)*
- *PNAS_NOCHAN_OPEN_VARILL_K1 (180 runs)*
- *PNAS_FULL_RESTRICT_VARILL_K1 (180 runs)*

- *PNAS_OPEN_VARILL_K1 (180 runs)*

Figure 3

- *PNAS_LIB_LS10_RESTRICT_K1 (220 runs)*

Figure 4

- *PNAS_LIB_FAM10_RESTRICT2240_K1 (250 runs)*

SUPPORTING INFORMATION

Figures C2, C4, C5

- *PNAS_VAL_K (300 runs)*

Figure D2-D4

- *These were generated with a version of the model with less stochasticity. Please email: m.simon@ucl.ac.uk for this model*

Figure D5

- *PNAS_IND_FAM_RESTRICT_VARILL_K1 (180 runs)*
- *PNAS_IND_LS_RESTRICT_VARILL_K1 (180 runs)*
- *PNAS_IND_HS_RESTRICT_VARILL_K1 (180 runs)*
- *PNAS_IND_ST_RESTRICT_VARILL_K1 (180 runs)*
- *PNAS_NOCHAN_OPEN_VARILL_K1 (180 runs)*
- *PNAS_FULL_RESTRICT_VARILL_K1 (180 runs)*
- *PNAS_OPEN_VARILL_K1 (180 runs)*
- *PNAS_IND_FAM_RESTRICT_VARILL_K2 (180 runs)*
- *PNAS_IND_LS_RESTRICT_VARILL_K2 (180 runs)*
- *PNAS_IND_HS_RESTRICT_VARILL_K2 (180 runs)*
- *PNAS_IND_ST_RESTRICT_VARILL_K2 (180 runs)*
- *PNAS_NOCHAN_OPEN_VARILL_K2 (180 runs)*
- *PNAS_FULL_RESTRICT_VARILL_K2 (180 runs)*
- *PNAS_OPEN_VARILL_K2 (180 runs)*
- *PNAS_IND_FAM_RESTRICT_VARILL_K3 (180 runs)*
- *PNAS_IND_LS_RESTRICT_VARILL_K3 (180 runs)*
- *PNAS_IND_HS_RESTRICT_VARILL_K3 (180 runs)*
- *PNAS_IND_ST_RESTRICT_VARILL_K3 (180 runs)*
- *PNAS_NOCHAN_OPEN_VARILL_K3 (180 runs)*
- *PNAS_FULL_RESTRICT_VARILL_K3 (180 runs)*

- *PNAS_OPEN_VARILL_K3 (180 runs)*

Figure D6

- *PNAS_IND_FAM_RESTRICT_VARILL_K1 (180 runs)*
- *PNAS_IND_LS_RESTRICT_VARILL_K1 (180 runs)*
- *PNAS_IND_HS_RESTRICT_VARILL_K1 (180 runs)*
- *PNAS_IND_ST_RESTRICT_VARILL_K1 (180 runs)*
- *PNAS_NOCHAN_OPEN_VARILL_K1 (180 runs)*
- *PNAS_FULL_RESTRICT_VARILL_K1 (180 runs)*
- *PNAS_OPEN_VARILL_K1 (180 runs)*
- *PNAS_IND_FAM_RESTRICT_K1_LC (200 runs)*
- *PNAS_IND_LS_RESTRICT_K1_LC (200 runs)*
- *PNAS_IND_HS_RESTRICT_K1_LC (200 runs)*
- *PNAS_IND_ST_RESTRICT_K1_LC (200 runs)*
- *PNAS_NOCHAN_OPEN_K1_LC (200 runs)*
- *PNAS_OPEN_K1_LC (200 runs)*
- *PNAS_FULL_RESTRICT_K1_LC (200 runs)*

Figure F1

- *PNAS_IND_FAM_RESTRICT_VARILL_K1 (180 runs)*
- *PNAS_IND_LS_RESTRICT_VARILL_K1 (180 runs)*
- *PNAS_IND_HS_RESTRICT_VARILL_K1 (180 runs)*
- *PNAS_IND_ST_RESTRICT_VARILL_K1 (180 runs)*
- *PNAS_NOCHAN_OPEN_VARILL_K1 (180 runs)*
- *PNAS_FULL_RESTRICT_VARILL_K1 (180 runs)*
- *PNAS_OPEN_VARILL_K1 (180 runs)*

MORE INFORMATION

For more information, please contact Miranda Simon <m.simon@ucl.ac.uk>.