

Replication archive for “Haste or Waste: Peer Pressure and Productivity in the Emergency Department”

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This folder contains the programs used to generate tables and figures in the article.

Data availability

The main data for this project are confidential and were obtained under Data Use Agreements with the New York State Department of Health Statewide Planning and Research Cooperative System (SPARCS), the New York State Department of Health Bureau of Production Systems Management Vital Records IRB Unit, and the New York City Department of Health and Mental Hygiene. Researchers interested in access to the data may contact SPARCS representatives at sparcs.requests@health.ny.gov. For more details, see <https://www.health.ny.gov/statistics/sparcs/access/>.

Software requirements

- Stata MP (version 15 used by author)
- R (version 3.4.3 used by author)
- Matlab (version R2014b used by author)

Description of programs

- Programs in CODE/ run sequentially to build and analyze the data; master.do runs them all in order
 - o See below for correspondence between .do files and tables/figures
 - o For tables, output is (mostly) in Stata matrices, which can be formatted in Excel or other software
 - o Graphs are output as .pdf files in \$graphs/ (as set in paths.do)
- A set of “ado” files used are stored in CODE/ado/

Instructions

- Edit paths.do to adjust default paths
- Put baseline datasets from SPARCS (outpatientED.dta, inpatient.dta) in DATA/ directory
- Follow master.do to run all steps in sequence (see below for description)

Step-by-step guide to programs (for correspondence between programs and tables/figures, see “Correspondence between figures/tables and programs” below)

1. Download any necessary programs
 - a. 00preliminaries.do
2. Read in baseline ED records and build first set of analysis variables
 - a. 01buildED.do, which calls otherVisits.R (R program)
3. Infer physician schedules & create team variables
 - a. 02processSchedules.do
4. Select cases for analysis file
 - a. 03selectAnalysisSample.do

5. Build analysis file
 - a. 04buildAnalysisSample.do
6. Generate Random Forest mortality predictions
 - a. 05forests.do, which calls forests.m in Matlab
7. Generate first set of descriptive statistics [**Table 1**]
 - a. 06caseDescriptives.do: outputs Stata matrixes PANEL_A, PANEL_B, COUNTS
8. Estimate and save match-effects models
 - a. 07estMatchFx.do
9. Examine sensitivity of team match effects [**Table 2**]
 - a. 08sensitivity.do, which outputs Stata matrix TABLE
 - i. Note: Likelihood-ratio test p-values are calculated in Excel after the fact
10. Analyze variance components [**Table 3**]
 - a. 09varComp.do, which outputs Stata matrix TABLE
11. Examine correlates of group match effects [**Table 4; Tables E.1-E.3**]
 - a. 10matchFxCorrelates.do, which outputs Stata matrices TABLE, TABLE_GENDER, TABLE_SPEED, TABLE_AGE
12. Examine correlations between group match effects estimates [**Figure 2**]
 - a. 11matchFxCrossCorr.do, which outputs graphs of form: \$graphs/oteamfx-`y'-`x'.pdf
13. Perform hospital-day analysis [**Table 5; Figure 3**]
 - a. 12dailyAnalysis.do, which outputs Stata matrices X_STATS & TABLE. As well as graph \$graphs/daily_s2siv-Inlos.pdf
14. Estimate quality effects of peer-induced cutbacks [**Table 6; Table E.5-E.11**]
 - a. 13qualityEffects.do, which outputs Stata matrices TABLE1 and TABLE2 as panels of Table 6, as well as for panels of Tables E.5-E.11 – see code
15. Estimate cross-physician quality differences [**Table 7; Table E.12**]
 - a. 14crossDocQuality.do, which outputs matrices TABLE1 and TABLE2 as panels of each of Table 7 and Table E.12 separately
16. Calculate extra summary statistics [**Tables A.1-A.2; Figure A.1**]
 - a. 15appA.do
17. Demonstrate predictive power of random forest risk scores [**Table D.1**]
 - a. 16appD.do
18. Calculate summary statistics by physician speed [**Table F.1**]
 - a. 17appF.do
19. Analyze sorting into teams [**Tables G.1-2**]
 - a. 18appG.do
20. Estimate event study of team changes and speed-ups [**Figure H.1; Table H.1**]
 - a. 19appH.do
21. Perform shift-level volume analysis [**Table I.1**]
 - a. 20appl.do
22. Examine monotonicity [**Figure E.1**]
 - a. 21appE-fig1.do
23. Examine distributions of match effects estimates [**Figure E.2**]
 - a. 22appE-fig2.do

24. Relate physician-specific spillover estimates to physician speed and spending [Table E.4]
 a. 23appE-tab4.do

Auxiliary files

- Ado files [provided in CODE/ado/]:
 - writeln – downloaded from Johannes Schmeider’s [website](#)
 - insample – downloaded from Johannes Schmeider’s [website](#)
- Outside information: physician & hospital characteristics:
 - Physician characteristics (graduation year, gender): DATA4WEB/doc_scrape.dta
 - Hospital characteristics (type, owner): DATA4WEB/hosp_type.dta

Dataset list

Data file	Source(s)	Notes	Provided
DATA/outpatientED.dta	SPARCS	Confidential; Years 2005-2013	No
DATA/inpatient.dta	SPARCS	Confidential; Years 2005-2013	No
Hospital type file: DATA4WEB/hosp_type.dta	Medicare Hospital Compare (Apr 2008)	Last compiled 09/2016	Yes
Doctor characteristics file: DATA4WEB/doc_scrape.dta	NY Office of the Professions , NY Doctor Profile , NPPES	Last compiled 09/2016	Yes

Data dictionary for DATA/outpatientED.dta

Variable name	Description
Ink_disNum	Case ID
fac_ID	Facility / hospital ID
doc_ID	Physician license number
crypt_pat_personIDE	Encrypted enhanced unique personal identifier of patient
treat_admDate	Date patient arrived
treat_dischDate	Date patient discharged
treat_admHour	Hour of day patient arrived
treat_dischHour	Hour of day patient discharged
F_treat_admDate	Flag: date patient arrived missing / imputed
F_treat_dischDate	Flag: date patient discharged missing / imputed
F_treat_admHour	Flag: hour of day patient arrived missing / imputed
F_treat_dischHour	Flag: hour of day patient discharged missing / imputed
Los	Length of stay, hours
flag_ct	CT scan indicated by revenue codes

flag_xray	X-ray indicated by revenue codes
flag_ekg	EKG indicated by revenue codes
flag_ultra	Ultrasound indicated by revenue codes
chrg_tot	Total charges
dx_admission	Patient's complaint on arrival, in ICD9 format
dx_admission_dxccs	HCUP CCS categorization of dx_admission
pat_age	Patient age in years
pat_sex	Patient sex
pat_race	Patient race
pat_ethnicity	Patient ethnicity
vital_date	Date of death for decedents, from NYS and NYC vital statistics records
payor_PrimaryReimb	Primary expected reimbursement source

Data dictionary for DATA/inpatient.dta

<i>Variable name</i>	<i>Description</i>
lnk_disNum	Case ID
fac_ID	Facility / hospital ID
crypt_pat_personIDE	Encrypted enhanced unique personal identifier of patient
treat_admDate	Date patient arrived
treat_dischDate	Date patient discharged