

## Documentation

**Paper:** "On the Role of Parallel Trade on Manufacturers and Retailers Profits in the Pharmaceutical Sector"

**Authors:** Pierre Dubois (TSE) and Morten Saethre (NHH)

### Data sources :

- The prescription/transaction data are proprietary, and were obtained from the Norwegian Directorate of Health. They can be obtained for research purposes that are covered by §13d of the Public Administration Act by sending an application to the Norwegian Directorate of Health (no standardized procedure) or from the Norwegian Institute of Public Health (<https://www.fhi.no/en/op/data-access-from-health-registries-health-studies-and-biobanks/norwegian-prescription-database/Access-data-norpd/>), though we ourselves obtained it directly from the Norwegian Directorate of Health.
- The data on wholesale prices are also proprietary, and can be obtained from the Norwegian Institute of Public Health through a standardized application procedure (available on their webpages).
- All other data are public on regulatory price caps and pharmacy/chain location and history are public.
- The IMS Health data on wholesale prices in other countries than Norway are proprietary but can be purchased for research.

### Replication files :

The programs are written for Python 3.7 and Stata.

\* environment.yml

YAML file exported with conda (<https://docs.conda.io/en/latest/>) describing the Python environment last used to run the project files

\* clean\_data.py

Creates data files for estimation of demand and bargaining model

Uses data from the Norwegian Directorate of Health on transactions (APOK) and the Norwegian Institute of Public Health (FHI) on wholesale prices (grossistregisteret), in addition to information on price regulation (from FHI), chain affiliation of individual pharmacies (FHI), parallel import licenses (FHI), wholesale prices in source countries (IMS/IQVA) and exchange rates (Central Bank of Norway)

\* prepare\_reducedform\_data.py

Prepares data for use in reduced form Stata analysis.

\* atorvastatin\_descriptives.py

Creates descriptive tables and figures for the paper (Table 4.1 and Figures 4.1 and 4.2)

\* estimate\_demand.py

Estimates demand model (Table 4.3)

\* estimate\_bargaining.py

Estimates bargaining model and simulates counterfactuals

\* transition\_prob\_tableA1.py

Calculates the transition frequencies between chains and drug versions for individual purchases (online appendix Table A.1)

\* exchrates.csv

Exchange rate series downloaded from the Central Bank of Norway ([https://www.norges-bank.no/en/topics/Statistics/exchange\\_rates/](https://www.norges-bank.no/en/topics/Statistics/exchange_rates/))

\* reduced\_form\_norway.do

STATA code that creates Tables 4.2, 7.1 A.4 and A.5.

\* demand\_estimation\_france.do

STATA code that creates Table A.3.