README

Robot Adoption at German Plants

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December 8, 2023

Data Availability and Provenance Statements

Availability

The dataset used for this project is the IAB Establishment Panel (waves 2013-2019) made available by the German Federal Employment Agency (Bundesagentur für Arbeit) and the Institute for Employment Research (Institut für Arbeitsmarkt- und Berufsforschung).
The data is confidential and subject to restricted access due to data protection legislation. Thus, the data cannot be made publicly available. Researchers can access the data of this project at the Institute for Employment Research, Regensburger Str. 104, 90478 Nuremberg, Germany.

Data Sources

The IAB Establishment Panel Survey (EP) contains the information on plant level robot use. For more information on the IAB Establishment Panel, see Bechmann et al. (2019). We use the below listed input data files for IAB EP waves (2013-2019). Additionally, we merge more detailed industry level information (WZ2008 3-digit) from the IAB Establishment History Panel (BHP). For information on the BHP data, see Ganzer et al. (2021).

- `iabbp2019.dta`
- `iabbp2018.dta`
- `iabbp2017.dta`
- `iabbp2016.dta`
- `iabbp2015.dta`
- `iabbp2014.dta`
- `iabbp2013.dta`

Computational and software requirements

The full codebase ran on a 8-core Intel server with 96GB of RAM and takes approximately 20 minutes from start to finish.

Description of programs and instructions for replication

- The file `00_MASTER.do` links all relevant program codes. For replication the main path in line 13 needs to be inserted and the input data files need to be stored in the `orig` folder. Then this `00_MASTER.do` can be used to run all following codes, which reproduce all numbers and tables provided in the paper.
- `01_IAB_preparation_waves.do` and `02_IAB_panel.do` prepare the IAB EP data.
- `03_clean.do` cleans robot data from the 2019 wave of the IAB EP.
- `04_impute_reshape.do` reshapes the robot data from wide to long format.
- `05_indicators.do` defines robot use variables and control variables.
- `06_capstock_approx.do` applies the capital stock approximation method by Müller (2017).
- `07_TFP_estimation.do` creates productivity variables.
- `08_preparing_controls.do` prepares control variables.
- `fact1.do` to `fact5.do` produce results for chapter 2.2 .
- `regression_choice_explanatories.do`, `regression_crosssection.do` and `regression_panel.do` produce results for chapter 3.

These codes generate LaTeX and Excel files and graphs in PDF format, which can can be clearly assigned to tables and graphs in the paper. Very few additional desciptives, which are only mentioned in text, can be found in the log files.

References

Bechmann, Sebastian, Nikolai Tschersich, Peter Ellguth, Susanne Kohaut, and Elisabeth Baier (2019). "Technical report on the IAB Establishment Panel". In: *FDZ-Methodenreport*.

Ganzer, Andreas, Lisa Schmidtlein, Jens Stegmaier, Stefanie Wolter, et al. (2021). *Establishment History Panel 1975-2019*. Tech. rep. Institut für Arbeitsmarkt-und Berufsforschung (IAB), Nürnberg.

Müller, Steffen (2017). "Capital stock approximation with the perpetual inventory method: An update". In: *FDZ-Methodenreport* 5.