

Data & Concise Explanation Document

Table 3 Replication

	AGRI	ELEN	MINING	PETROL	TEXT	TRANSPORT	WOOD	TFP
AGRI	-0.53862	-0.40508	0.40778	0.48587	-0.13377	0.35068	-0.31038	-1.1573
ELEN	-0.40508	0.46983	-0.054172	-0.39672	0.085016	0.079987	0.37146	-2.5277
MINING	0.40778	-0.054172	-0.19239	-0.17788	-0.029622	0.096685	0.06008	-2.5028
PETROL	0.48587	-0.39672	-0.17788	0.39092	-0.024522	-0.19350	-0.059269	-4.7811
TEXT	-0.13377	0.085016	-0.029622	-0.024522	-0.16703	0.053783	-0.04132	4.8366
TRANSPORT	0.35068	0.079987	0.096685	-0.19350	0.053783	-0.34794	0.098761	2.6680
WOOD	-0.16686	0.22114	-0.050398	-0.084172	0.21615	-0.039694	-0.11934	3.0363

Explanation:

Given that we are unable to use capital investment flows to estimate capital stock, we believe that gross fixed capital formation is a suitable alternative variable to do so with.

We use gross fixed capital formation (measured in constant 2015 USD value) to estimate capital stock. We assume a depreciation rate of 5%. We approximate $K_0 = \frac{1+g}{g} I_0$, where g is the average growth rate of the first five GFCF observations. We then update $K_t = (1 - \delta) K_{t-1} + I_t$ with a fixed depreciation rate $\delta = 0.05$.

Because of data limitations, we only used OECD countries for this replication. We used annual data ranging from 2008 to 2021 since these were the years in which our data overlapped.

We chose to use OECD STAN data for the industry-specific value added values. We collected seven unique datasets from US Census Bureau with import data on each of the OECD countries, each with products corresponding to one of the seven industries. We used WorldBank WDI data to collect land and labor endowment factors, as well as to collect GFCF used to estimate capital stock.

In summary, our code does the following:

- Loads WorldBank WDI, CEPII Gravity, OECD STAN, and US Census Bureau International Trade datasets.
- Builds a country-year panel with labor, land, gross fixed capital formation (GFCF) and GDP from WDI, which is now in a format more in line with the other datasets
- Transforms GFCF flows into capital stocks via a 5 %-depreciation perpetual-inventory method
- Calculates and merges value-added, export-variety, gravity-distance and factor panels into one dataset
- Instruments export-variety with gravity variables and runs 2SLS for each equation
- Performs full 3SLS on seven share equations + the TFP equation and imposes symmetry and accurate sum constraints

Citations:

CEPII. *Gravity Database*. Version 202211, CEPII, July 2022, https://www.cepii.fr/CEPII/en/bdd_modele/bdd_modele_item.asp?id=8. Accessed 10 Apr. 2025.

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Organisation for Economic Co-operation and Development (OECD). *STAN Structural Analysis Database*. OECD, n.d., <https://www.oecd.org/en/data/datasets/structural-analysis-database.html>. Accessed 10 Apr. 2025.

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