Discussion on 'Do Regional Free Trade Deals Spell Opportunity or Challenge for Growth? – Role of Technology Transfer'

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Summary

- Main Question: This paper investigates whether mega free trade deals spell opportunity or challenge for growth and how much technology transfer could boost potential growth (TFP) via international trade and domestic patent accumulation.

- Main Findings: 1) foreign knowledge influences growth (TFP) through the channel of trade; 2) Cost-benefits analysis of 4 scenarios on RCEP & CPTPP. Compared with RCEP, CPTPP expansion (if US joins it) has a greater impact on technology transfers.

- Main Contributions: 1) re-test knowledge spillover through international trade using a new sample; 2) Pattern v.s. R&D, and consider pattern quality, but yield similar elasticities; 3) show that the influence of imports of knowledge on TFP is not driven by an independent positive effect of trade openness on TFP;

Discussion 1: Measure

- Country *i*'s imports of knowledge:

-Flow base,

$$S_{it}^{fL-F}=\sum_{j=1}^{38}\left[\frac{M_{ijt}^{\lambda}}{Y_{jt}^{n}}\right]\times S_{jt}^{d},\ i\neq j$$

-Stock base,

$$S_{it}^{fL-S}=\sum_{j=1}^{38}\left[\frac{M_{ijt}^{\lambda}+0.95M_{ijt-1}^{\lambda S}}{Y_{jt}^{n}+0.95Y_{jt-1}^{n,S}}\right]\times S_{jt}^{d},\ i\neq j$$

- Q1: the propensity to import. 1) The denominator shall be total absorption rather than total GDP. 2) Direct import v.s. indirect import, including re-import or re-export & trade in value-added; 3) Distinguish intermediate and capital goods from consumption goods; 4) how to calculate the initial values of Y and M in 1995.

- Q2: the stock of knowledge. 1) patent applications & patent grant, the scale effect and country-level differentiation; 2) patent categories, invention patent, utility patent, and design patent ; 3) patent quality, bias from the propensity to innovate index and GDP per capita, how about patent citation.

Discussion 2: Identification

- The cointegration model:

$$\ln TFP_{it} = \alpha^0 + \alpha^d \ln S_{it}^d + \alpha^f m^X \ln S_{it}^f + CD + e_{it}$$

- Q1: With DOLS, how many leads and lags of the changes in S^d_{it} and S^f_{it} are included? In particular, the maximum lag/lead length is limited in a small sample >>> serial correlation in e_{it} and biased estimators.
- Q2: Test the stationary of the variables and perform the unit root test (ADF test or PP test). I(0), I(1), or I(2)…
- Q3: The serial correlation of TFP over times >>> dynamic panel estimations, i.e. difference GMM or system GMM;
- Q4: Reverse causation. Productivity efficiency and trade openness, productivity efficiency and innovation, innovation and trade;
  >>> exogenous shocks (WTO or tariff) and micro data;

Discussion 3: Counterfactual

Scenario	Baseline	2		3		4	
	RCEP Succeeds; U.S. not in CPTPP	RCEP Fails; U.S. not in CPTPP		RCEP Fails; U.S. joins in CPTPP		RCEP Succeeds; U.S. joins CPTPP	
	GDP In 2030 (Tri. $)	Deviation (%)	Charge in TFP (ppt.)	Deviation (%)	Change in TFP (ppt.)	Deviation (%)	Chance in TFP (ppt.)
China	24.6	-0.5	-0.1	-0.5	-0.1	1.4	0.3
US.	25	0.2	0.0	0.7	0.1	0.9	0.3
Japan	5.1	-1.3	-0.2	0.7	0.1	2.1	0.2
Korea	2.1	-1.4	-0.1	-1.4	-0.1	0.0	0.0
Vietnam	0.5	-1.4	-0.1	6.0	0.5	6.4	0.6

- Q1: How to yield these counterfactual changes in GDP? More details on method, and its relationship with international knowledge spillover.
- Q2: If U.S. joins in CPTPP, will China’s GDP decrease more? Offer some forecasts on real variables, like real GDP and welfare;
- Q3: Refer to Akcigit and Melitz (2021, NBER wp.29611), which offers a comprehensive model that features almost all mechanisms that connect trade and innovation (and the selection effect);

T H A N K S