Comments on Biewen and Blank

Variations in Service Trade

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Summary

- This paper examines how firm-level services trade affect the variations in aggregate services trade.
- This paper utilizes the German firm-level data for 2001–2012, which include such information as:
  - the value of transactions;
  - **type of services traded** (Transport; Financial; IT; Construction; Royalties; etc.);
  - destination country (for exports), source country (for imports);
  - **sector of the firm**.

Data

- The distinction between **the type of services** and **the sector of a firm** is important.
- This is because the industry to which the firm belongs does not necessarily coincide with the type of services traded.
  - **Figure 2**: "The manufacturing sector even trades more construction and business services than the construction and business sectors do, respectively" (p.4).

Major findings

- There are **4** major findings:
  1. The **extensive margin** to be the main contributor to the cross-sectional variation of services trade while the **intensive margin** is most important for explaining variations over time and variations in growth rates. (Tables 4&5)
  2. During the great trade collapse in 2008–2009, the **extensive margin** showed positive contribution to the growth of aggregate services exports. (Tables 6&7)
  3. Firms with large volumes of trade tend to be better able to cope with the trade collapse. (Figure 5)
  4. The impact of firm-specific shocks is an important determinant of services trade volatility. (Table 8)

Methodology

- This paper focuses the following three dimensions:
  1. Cross-sectional variation (**country** and **firm** levels);
  2. Variations over time;
     - Note: The definition of margins is different from that of the previous section.
  3. Variations in growth (volatility).

1 Cross-sectional variation

- Following Bernard et al. (2009, AER), aggregate trade with country c (x_c) can be decomposed into two components: **intensive margin** and **extensive margin**.

$$x_c = \underbrace{o_c}_{\text{extensive}} \underbrace{\left(\frac{x_c}{o_c}\right)}_{\text{intensive}} \tag{1}$$

  - **Extensive margin** (o_c):
    The number of firm-service observations for which trade with country c is positive.
  - **Intensive margin** (x_c/o_c):
    The volume of traded with country c per transaction.

1 Cross-sectional variation

- **Extensive margin** (o_c):

$$o_c = f_c s_c \underbrace{\left(\frac{o_c}{f_c s_c} \right)}_{=d_c} = f_c s_c d_c \tag{2}$$

  - f_c: the number of firms that are trading with country c;
  - s_c: the number of traded services with country c;
  - d_c: trade density with country c.

1 Cross-sectional variation

- **Intensive margin** (x_c/o_c):

$$\frac{x_c}{o_c} = \underbrace{\frac{tr_c}{o_c}}_{=a_c} \underbrace{\frac{x_c}{tr_c}}_{=\bar{x}_c} = a_c \bar{x}_c \tag{3}$$

  - tr_c: the number of transactions with country c;
  - a_c: activity (**additional extensive component** extracted from intensive margin) measures to what extend observed firm-service observations o_c are actually utilized through the number of transactions with country c;
  - $\bar{x}_c$: the average volume traded with country c per transaction.

1 Cross-sectional variation

- Decomposition of aggregate trade:

$$x_c = o_c \left(\frac{x_c}{o_c} \right) = \underbrace{f_c s_c d_c a_c}_{\text{extensive}} \underbrace{\bar{x}_c}_{\text{intensive}} . \quad (4)$$

- Regression equation (log form):

$$\ln x_c = \alpha_1 \ln f_c + \alpha_2 \ln s_c + \alpha_3 \ln d_c + \alpha_4 \ln a_c + \beta \ln \bar{x}_c + \varepsilon_c. \quad (5)$$

  - Estimated elasticities $(\alpha_1, ..., \alpha_4, \beta)$ capture the **average percentage contribution of each margin**.
  - Similar decomposition can be applied to a firm dimension: $x_f = c_f s_f d_f a_f \bar{x}_f$, where c_f is the number of countries with which firm f is trading.

1. The **extensive margin** to be the main contributor to the cross-sectional variation of services trade while the **intensive margin** is most important for explaining variations over time and variations in growth rates. (Tables 4&5)

2 Variations over time

- Methodology follows Bricogne et al. (2012, JIE).
- The mid-point growth rate:

$$\gamma_{fcst} = \frac{x_{fcst} - x_{fsct-1}}{0.5(x_{fcst} + x_{fsct-1})}. \tag{6}$$

- The mid-point growth rate for total trade (i.e., aggregate growth) is the weighted average of individual growth.

2 Variations over time

- The aggregate growth rate can be decomposed into four components:
  1. Growth of entering and existing firms (**extensive margin**)
  2. New and retired trade relationships (**extensive margin**)
  3. Added and dropped services (**extensive margin**)
  4. Growing and shrinking growth rates of ongoing country-service relationship (**intensive margin**)
- Note: The definition of margins is different from that of the previous section.

2. During the great trade collapse in 2008–2009, the **extensive margin** showed positive contribution to the growth of aggregate services exports. (Tables 6&7)

2 Variations over time

- Following Bricogne et al. (2012, JIE), the authors decompose individual mid-point growth rates and run the following restricted WLS:

$$\gamma_{fsct} = \alpha_t + \omega_{st}\delta_{st} + \omega_{ct}\delta_{ct} + \omega_{qt}\delta_{qt} + \epsilon_{fsct}. \quad (7)$$

where δ_{st}: services category dummy; δ_{ct}: country dummy; δ_{qt}: size classes dummy; $\omega_{st}\delta_{st} + \omega_{ct}\delta_{ct} + \omega_{qt}\delta_{qt} = 0$.

3. Firms with large volumes of trade tend to be better able to cope with the trade collapse. (Figure 5)

3 Variations in growth (volatility)

- Methodology follows di Giovanni et al. (2014, Econometrica, forthcoming).
- Variance-covariance decomposition:

$$\underbrace{\sigma^2_{\gamma\tau}}_{\text{actual growth}} = \underbrace{\sigma^2_{\delta\tau}}_{\text{macro-meso-}} + \underbrace{\sigma^2_{\varepsilon\tau}}_{\text{firm-level}} + \underbrace{\text{Cov}_\tau}_{\text{covariance}} . \qquad (8)$$

4. The impact of firm-specific shocks is an important determinant of services trade volatility. (Table 8)

General remarks

- This is an interesting paper on an interesting subject, using a unique and detailed data set.
- The paper is exceptionally clearly written and well structured.
- The central questions to be addressed and methods are remarkably clearly set out and the author is to be congratulated on this.
- I have only **3 minor questions**, mainly for clarifications.

Q1 Variations over time

- The mid-point growth rate:

$$\gamma_{fcst} = \frac{x_{fcst} - x_{fsct-1}}{0.5(x_{fcst} + x_{fsct-1})}. \quad (9)$$

- In Tables 6 and 7, the authors decompose total services exports and imports for **monthly, quarterly, and yearly frequencies for 2001 to 2012**.
  - The results report the average growth rates for the **respective frequencies**.
- How about the **longer-term growth**?: between t and $t-11$ (years).
  - The authors seem to focus on changes within very short period.
  - New firms, new transactions, or new services may be start trade with small amount.
  - Indeed, "across five- and ten-year time horizons, we found that the relative contribution of the extensive margins rises" Bernard et al. (2009, AER, p.487).

Q2 Variations in growth rates (volatility)

- Some of the services trade are closely related to goods trade (as was briefly discussed in p. 13).
  - Is it possible to examine how the variations of services trade are related to those of **goods trade**?
  - Is it possible to examine how the variations of services trade are related to those of **services output**?
    - "International trade collapsed dramatically during the current recession, by far more than the slowdown in economic activity would imply" (Levchenko et al. 2011, AER, p.293).
- Intensive margin seems to be measured by **value**, not by quantity.
  - If so, how the variations are related to those of **exchange rate**?
  - The variations of the intensive margin may be attributable to the variations of exchange rate, especially in the short run.

Q3 Policy implications

- Are there any implications for **German competitiveness** (or **German comparative advantage**)?
  - Page 1: The authors state that "when assessing a country's **competitiveness** in terms of export performance it is essential for policy makers not only to focus on goods trade alone but also take a country's ability to trade efficient services into account" (p.1).
- It might also be interesting if the authors emphasize how their findings of services trade are similar to and/or different from those of goods trade.
  - "Services trade is better predicted by gravity equations than goods trade" (Kimura and Lee, 2006, RWE, p.92).

Very minor comments

1. Is **German competitiveness** different from **German comparative advantage**?
   - "Trade between countries is so much unlike competition between businesses that many economists regard the word "competitiveness," when applied to countries, as so misleading as to be essentially meaningless" Krugman (1991, Science, p.811).
2. Sections 4-5: Because different definitions of margins are used in Section 3 and Sections 4-5, the more careful interpretations seem to be needed.

Very minor comments

3. Section 5: The analysis decomposed the variance of actual growth into those of macro-meso and firm-level shocks. But I was wondering whether the variance may be explained by the industry (i.e., type of services) level.
4. Page 24: In Figure 1, the label is needed to distinguish the difference between the number of firms and trade volume.
5. Page 29: In notes in Figure 6, equation number is missing.

Concluding Remarks

- This is an interesting paper with important findings.
- Indeed, I learned a lot from this paper.
- **I like it!**
- But some more clarifications seem to be helpful for readers...