Discussion of

“Markups and Firm-Level Export Status”
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Slovenia 1990-2006

Growth accounting

\[ Y_t = A_t K_t^\alpha L_t^{1-\alpha} \]
\[ K_{t+1} = (1 - \delta) K_{t+1} + I_t \]
\[ \frac{Y_t}{N_t} = A_t^{1-\alpha} \left( \frac{K_t}{Y_t} \right)^{\frac{\alpha}{1-\alpha}} \frac{L_t}{N_t} \]

Important dates

1991 independence from Yugoslavia

2004 integration into the European Union
Growth accounting for Slovenia

\[
\frac{1}{A_t^{1-\alpha}} \quad \frac{Y_t}{N_t} \quad \left( \frac{K_t}{Y_t} \right)^{\frac{\alpha}{1-\alpha}} \quad \frac{L_t}{N_t}
\]
Did increased exporting activity drive the aggregate increase in productivity during in Slovenia in the 1990s?
International trade in Slovenia

- Exports
- Imports

Percent GDP
Did increased exporting activity drive the aggregate increase in productivity during in Slovenia in the 1990s?

In 1980s and 90s, Mexico expanded its exporting activity far more rapidly than did Chile, but productivity grew far more rapidly in Chile than it did in Mexico.
De Loecker-Frederic Warzynski paper


Export status: domestic producer, export entrant, export quitter, or continuing exporter, by year.
\[
\Delta q_{it} = \mu \left[ \alpha_{\text{Lit}} \Delta \ell_{it} + \alpha_{\text{Mit}} \Delta m_{it} + \alpha_{\text{Kit}} \Delta k_{it} \right] + \Delta \omega_t + \Delta \varepsilon_{it}
\]

Set \( i_{it} = i_t(\omega_{it}, k_{it}) \), and assume that \( \frac{\partial i_t(\omega_{it}, k_{it})}{\partial \omega_{it}} > 0 \). Then

\[
\omega_{it} = h_t(i_{it}, k_{it})
\]

\[
\Delta q_{it} = \mu \left[ \alpha_{\text{Lit}} \Delta \ell_{it} + \alpha_{\text{Mit}} \Delta m_{it} + \alpha_{\text{Kit}} \Delta k_{it} \right] + h(i_{it}, k_{it}) - h(i_{it-1}, k_{it-1}) + \Delta \varepsilon_{it}
\]

\[
\Delta q_{it} = \mu \left[ \alpha_{\text{Lit}} \Delta \ell_{it} + \alpha_{\text{Mit}} \Delta m_{it} \right] + \left[ \alpha_{\text{Kit}} \Delta k_{it} + h(i_{it}, k_{it}) - h(i_{it-1}, k_{it-1}) \right] + \Delta \varepsilon_{it}
\]
\[
\Delta q_{it} = \mu \left[ \alpha_{Lit} \Delta \ell_{it} + \alpha_{Mit} \Delta m_{it} \right] + \tilde{\phi}_t(i_{it-1}, k_{it-1}, P_{it}) + \Delta \varepsilon_{it}^*
\]

\( P_{it} \) is survival probability at \( t - 1 \)

Use \( \ell_{t-1} \) and \( m_{t-1} \) to instrument for \( \ell_t \) and \( m_t \).

Run regressions of this form, and alternatives, that include dummy variables for export status.

This is the only place where information on international trade enters the model.

Notice that to disentangle the change in productivity term from the cost of capital term, we need to use information on \( \alpha_{Kit} \).
Macro data show that if it is exports driving productivity growth, it is not aggregate exports, but the composition of exports.

Why not look at imports? (Broda-Weinstein 2004)

**Data:**
four-digit SITC bilateral trade data (1033 categories in SITC.R3 — source: OECD).

**Exercise:**
- rank categories in order of base year exports (averaged with two subsequent years).
- form sets of categories by cumulating exports in base year — the first 2 categories account for 10 percent of exports, for example; the next 4 categories account for 10 percent of exports; and so on.
- calculate the fraction of exports in subsequent years accounted for by each set of categories.
Composition of exports: Slovenia to Germany

Cumulative fraction of 1992 export value

Fraction of 2006 export value
Composition of exports: Slovenia to Germany

The chart shows the composition of exports from Slovenia to Germany, with the cumulative fraction of the 1992 export value on the x-axis and the fraction of the 2006 export value on the y-axis. The bars represent different percentages of the export value, with the highest value being 781.7% at 0.00, followed by 42.6% at 0.15, 28.4% at 0.25, 24.6% at 0.35, 14.5% at 0.45, 11.4% at 0.55, 9.1% at 0.65, 7.3% at 0.75, 7% at 0.85, 2.9% at 0.95, and 1.6% at 0.95.
Composition of exports: Germany to Slovenia

The diagram shows the composition of exports from Germany to Slovenia, with the cumulative fraction of 1992 export value plotted against the fraction of 2006 export value. The bars indicate the percentage of the 1992 export value that is represented by each fraction of the 2006 export value.

Key values include:
- 741.7% at 0.1
- 110.8% at 0.2
- 60.4% at 0.3
- 39.9% at 0.4
- 26.6% at 0.5
- 16.7% at 0.6
- 15% at 0.7
- 12.4% at 0.8
- 7.1% at 0.9
- 2.5% at 1.0
Least traded goods: Germany and Slovenia

Slovenian exports to Germany

German exports to Slovenia

fraction of export value

Prices relative to German exports to Slovenia (other)
Why should exporters be able to charge higher markups?

Germans and Italians have different utility functions than do Slovenians.

Germans and Italians have higher incomes and utility is nonhomothetic. (Goksel 2008 and Simonovska 2008)

Nature of competition may be different in Germany and Italy than it is in Slovenia.
Wiseman (2009), “Heterogeneous Firms, Markups in Free Entry Equilibria, and Location Models”

In the classic location model (extension of Vogel 2008)

Consumers are uniformly distributed around the circumference of a circle.

Consumers inelastically demand 1 unit of a homogeneous good.

Firms pick a location and a price.

\[ u = y - (p_i + \tau_i) \]
Location model with elastic demand

\[ u = b + \frac{c_i^\rho - 1}{\rho} \]