Small States, Big Effects?

Oil Price Shocks and Economic Growth in Small Island Developing States

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The Takeaway Message

• Small states and small effects!
  – After a rise in oil prices, all 7 countries experience a temporary increase or negligible reduction in real GDP
  – The role of energy intensity and exchange rate system is not relevant in explaining this finding
  – No difference between oil importers and exporters
Research Questions

• Do rising oil prices reduce GDP growth in SIDS?

• Is the effect of oil price shocks on real GDP growth different in oil-exporting countries compared to oil importers?

• To what extent is the impact on real GDP growth linked to oil intensity use and exchange rate regimes?
Relation to the Literature

• Early models found large effects
  – The 1973-74 oil price shock led to a 7% decline in real GNP in the United States and as much as 17% in Japan – Rasche and Tatom (1977)

• Relationship asymmetric
  – Rising oil prices seem to retard economic activity more than how falling oil prices stimulate it – Hamilton (1983); Mork (1989)
Relation to Literature

• Magnitude now smaller
  – A 10% oil price shock would have reduced GDP in the United States by 0.7% prior to 1984 but later declined to 0.25% over a 2-3 year period – Blanchard and Gali (2007)

• Oil intensive oil-importing developing countries suffer more from adverse oil price shocks than OECD countries – IEA (2004)

• Quantitative analysis of 13 Pacific islands between 2002 and 2009 show that rising oil prices feed directly into inflation and slow economic growth – Davies and Sugden (2010)
Stylized Facts – Common Features

Source: United Nations Conference on Trade and Development (UNCTAD)
Stylized Facts – OP/GDP Correlation
Data and Methodology

• Sample – 7 countries
  – Caribbean, Pacific, and AIMS
  – Oil Endowment
    • Exporters – Bahrain and T&T
    • Importers – Cuba, Jamaica, Fiji, Kiribati, Mauritius
  – Exchange Rate System
    • Fixed – Fiji, Kiribati, Bahrain, Cuba
    • Managed Float – Jamaica, T&T, Mauritius

• Annual Data: 1980 - 2012
  – crude oil prices (op)
  – exchange rate (er)
  – consumer price index (cpi)
  – domestic GDP (gdp)

• Diagnostic checks
  – All series at most I(1): ADF and KPSS Tests
  – VAR lag length: BIC
  – Cointegration in 6 countries, Full rank in Fiji
Data and Methodology

- **CVAR**
  - Short-run restrictions on the contemporaneous matrix of coefficients to improve estimation results

\[ \Delta Y_t = \Pi Y_{t-1} + \sum_{i=1}^{p} \Gamma_i \Delta Y_{t-i} + u_t \]

\[ Y_t = [op_t, er_t, cpi_t, gdp_t]' \]

\[ u_t = B \varepsilon_t \]

\[
\begin{bmatrix}
    u_{op,t} \\
    u_{er,t} \\
    u_{cpi,t} \\
    u_{gdp,t}
\end{bmatrix} =
\begin{bmatrix}
    \gamma_{11} & 0 & 0 & 0 \\
    \gamma_{21} & \gamma_{22} & 0 & 0 \\
    \gamma_{31} & \gamma_{32} & \gamma_{33} & 0 \\
    \gamma_{41} & \gamma_{42} & \gamma_{43} & \gamma_{44}
\end{bmatrix} =
\begin{bmatrix}
    \varepsilon_{ops,t} \\
    \varepsilon_{ers,t} \\
    \varepsilon_{cpis,t} \\
    \varepsilon_{gdp,t}
\end{bmatrix}
\]
Main Empirical Results

- Consumer Price Level
  - Unambiguous increase in consumer prices
Main Empirical Results

• Exchange Rate
  – Oil exporters - RER appreciates

  – Oil importers - RER appreciates initially followed by a depreciation by the second year
Main Empirical Results

- **Real GDP**
  - Oil price increases generally have a positive effect on real GDP growth

- **No obvious difference**
  - Oil-importing or exporting
  - Exchange rate system
  - Oil intensity
Conclusions

• Oil price shocks are inflationary in all 7 SIDS economies

• Small states and small effects!
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  – The role of energy intensity and exchange rate system is not relevant in explaining this finding
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• Possible Explanation: Endogenous Policy Choices
  – Sectoral Composition
  – Locational advantages
  – Outward-oriented Economic Policies
Thank you for your time and interest.

I look forward to your comments and questions.