



**Economic and Financial Linkages in the Western Hemisphere
Seminar organized by the Western Hemisphere Department
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Spillovers across NAFTA

Andrew Swiston and Tamim Bayoum

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Economic and Financial Linkages in the Western Hemisphere

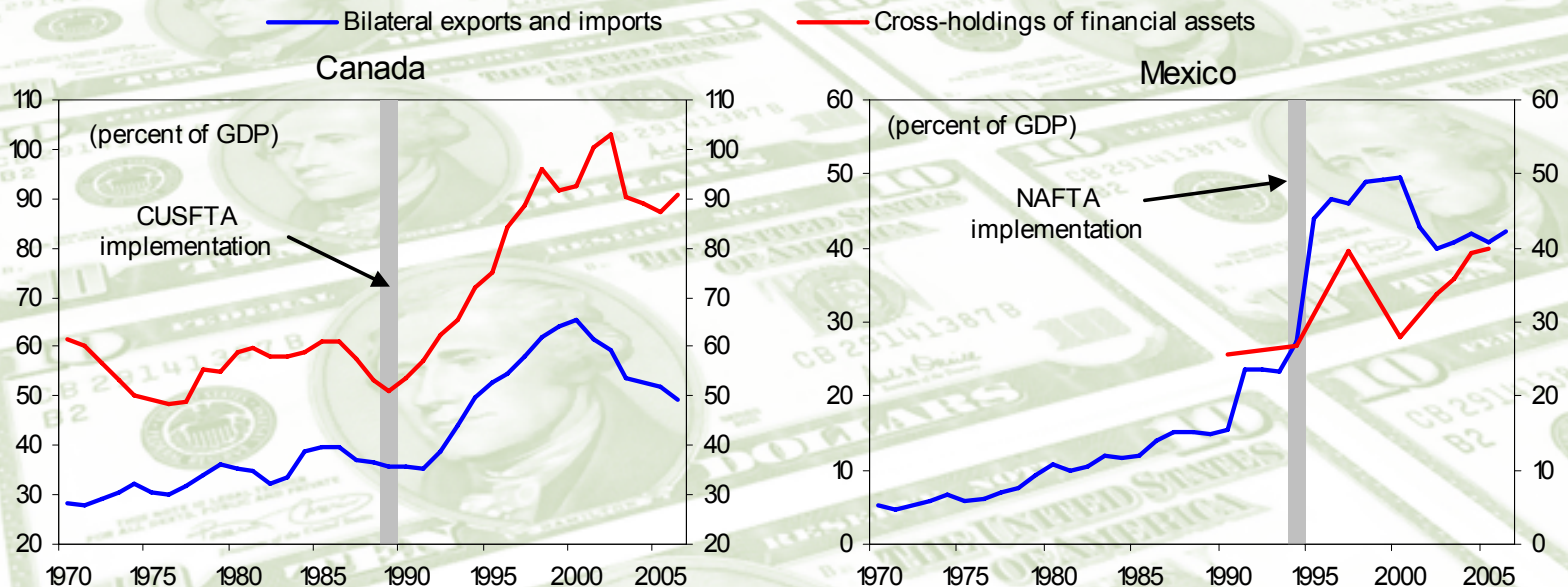
Real and Financial Linkages in North America:
Spillovers Across NAFTA

by Andrew Swiston and Tamim Bayoumi

Motivation

- **Rapid increase in globalization:** What are the implications for comovement of economic activity across countries?
- **Economic theory:** Predictions as to the effects of trade or financial integration on business cycle synchronization are not clear.
- **North America:** Offers good opportunity to study effects due to dramatic rise in integration.

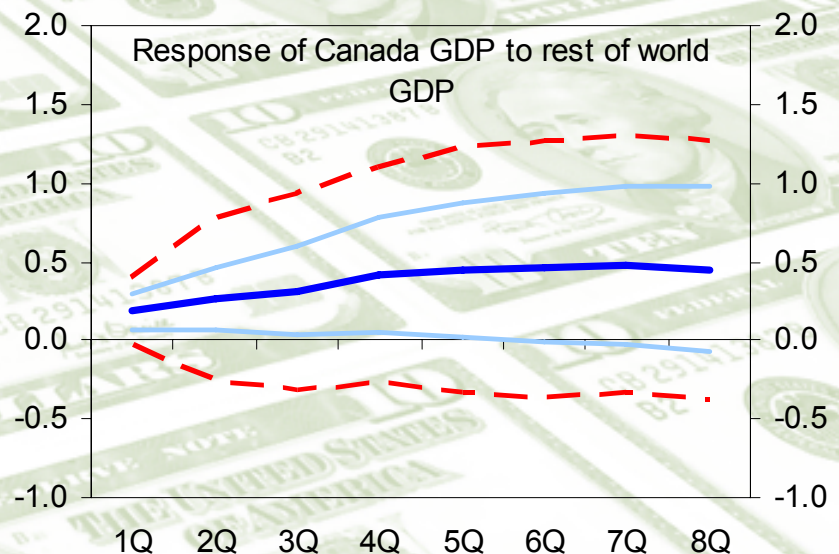
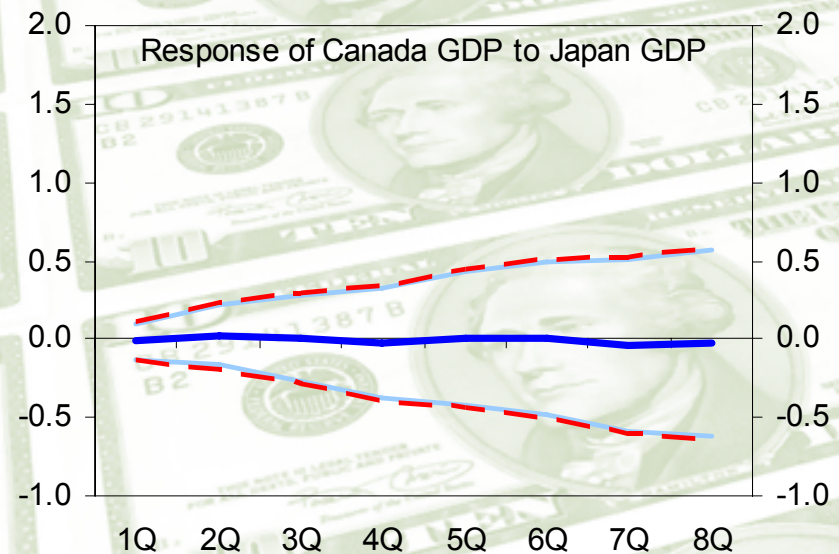
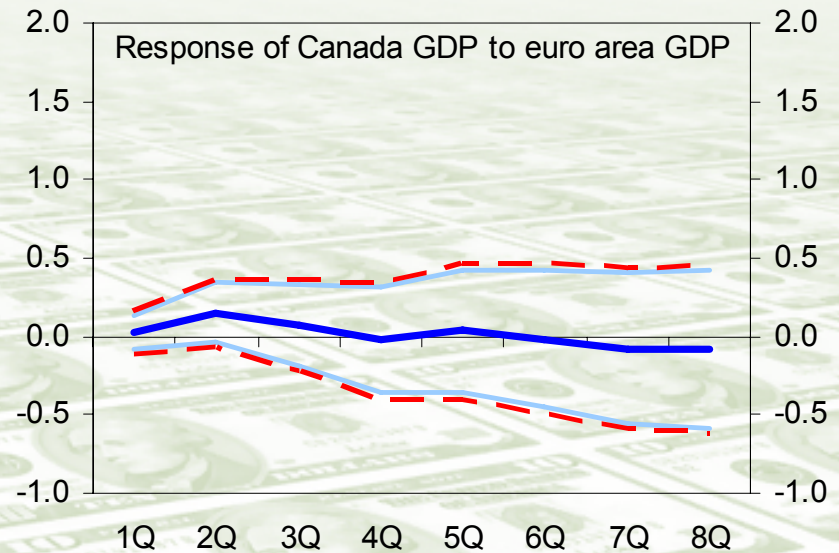
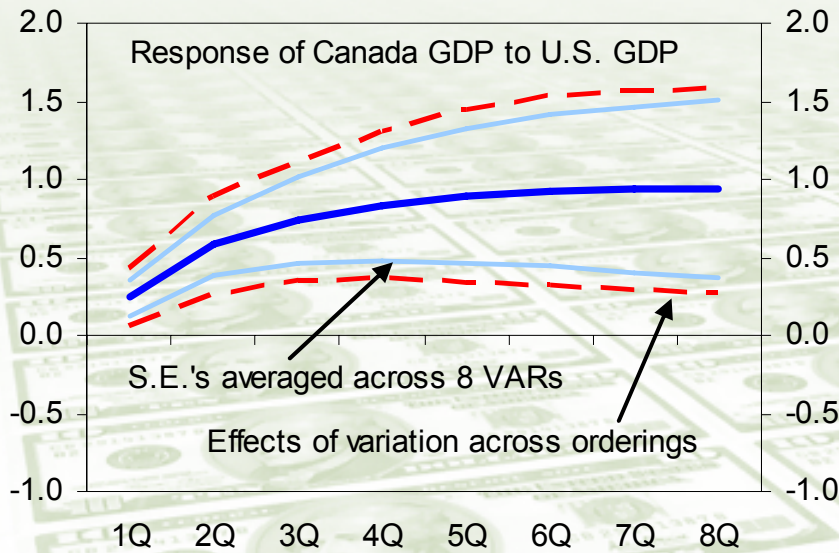
U.S. Integration with Canada and Mexico



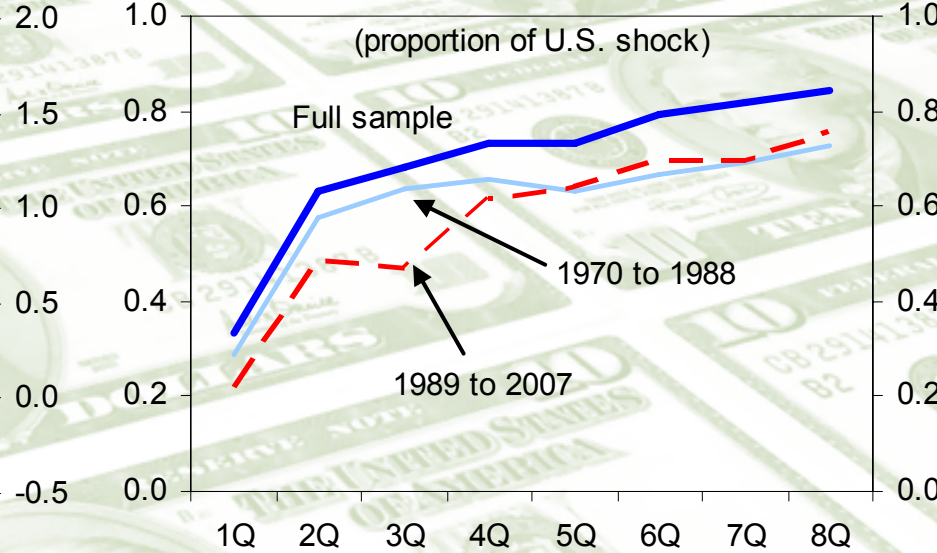
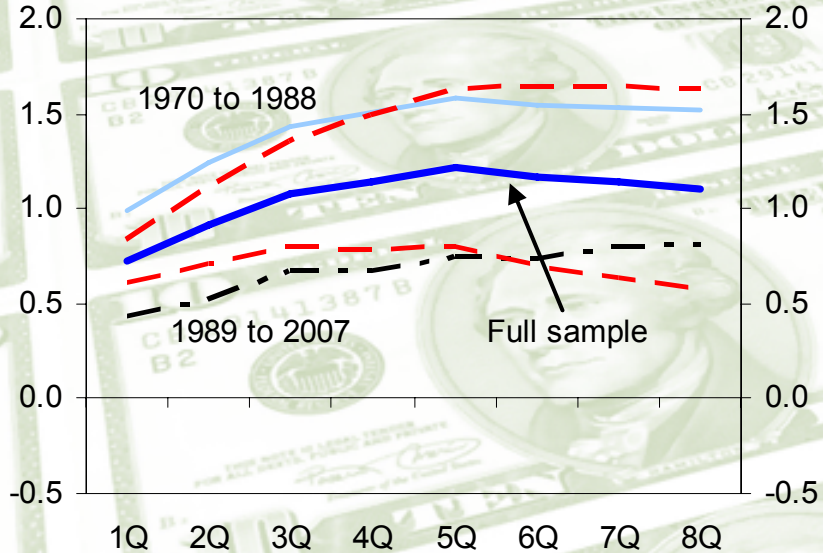
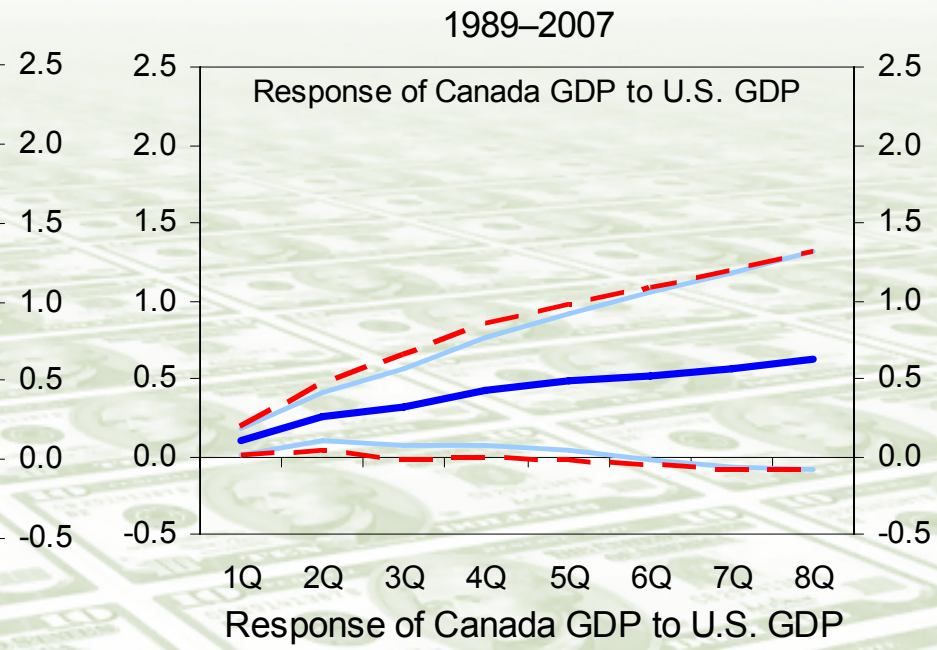
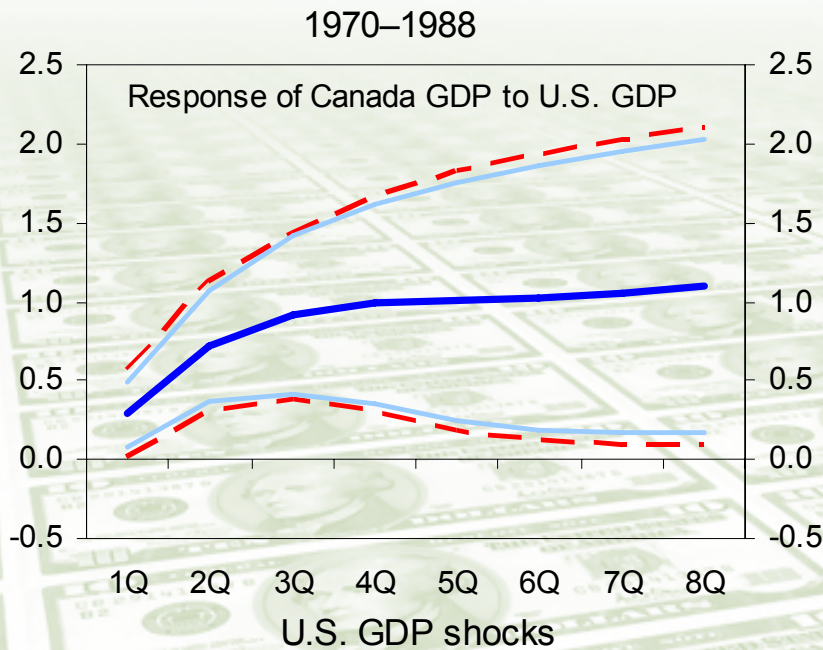
Technique

- Five-by-five VAR with real GDP for U.S., euro area, Japan, rest of world, & Canada or Mexico. Rest of world is an aggregate of 11 countries, diverse geographically and in industrial structure, proxying for global shock.
- Spillover channels (trade, commodity prices, financial) added as exogenous variables.
- Main results use an average of 8 Cholesky orderings, implying Bayesian-like “priors” on the direction of spillovers across main regions. Paper also shows results of 3 “extreme” orderings.
- These “priors” are updated by the variance-covariance matrix of VAR residuals to arrive at estimate of impact of shock.
- **What is changing? Bottom line:** Responses differ because ordering of variables assigns contemporaneous correlation between shocks to the variable first in the ordering.

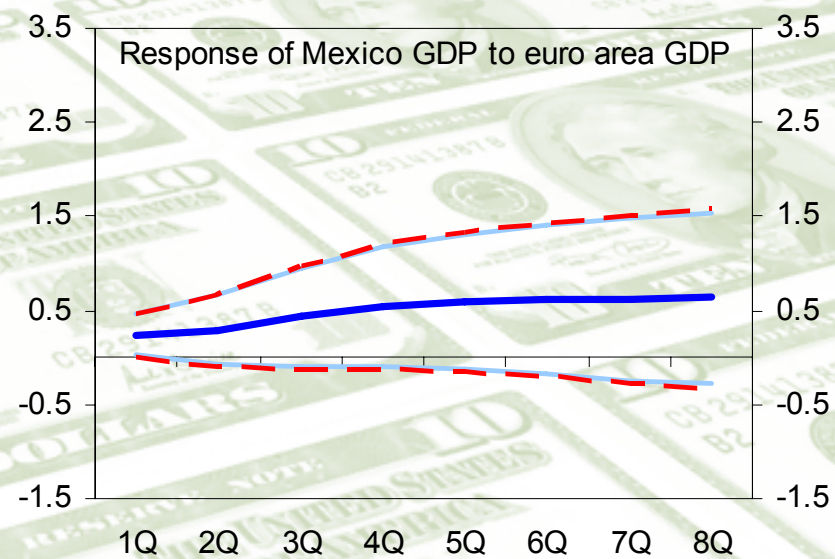
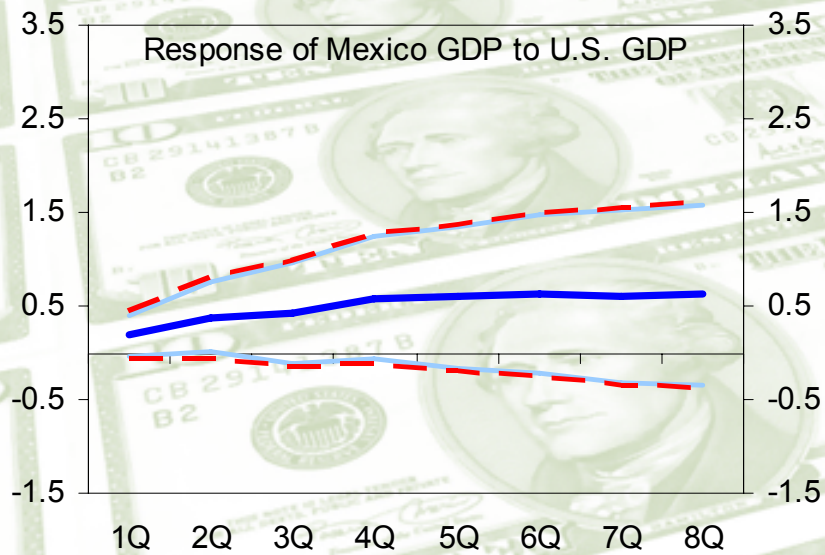
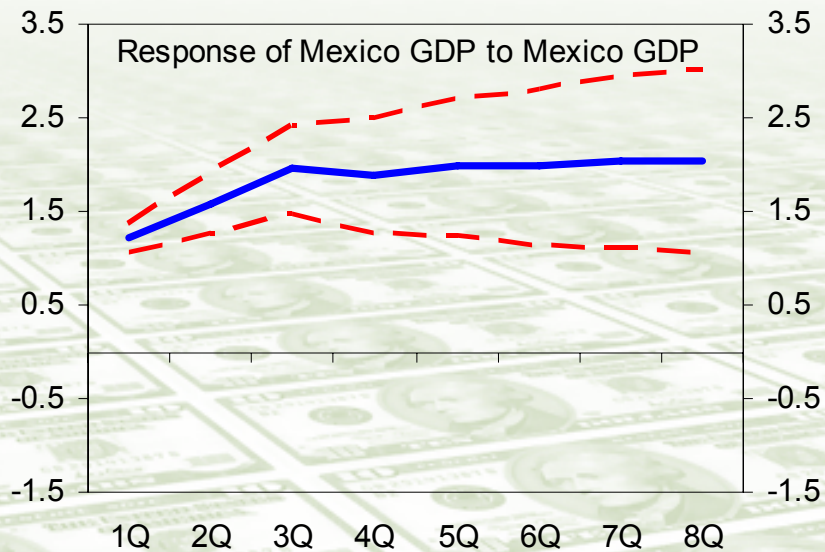
Full Sample Spillovers: Canada



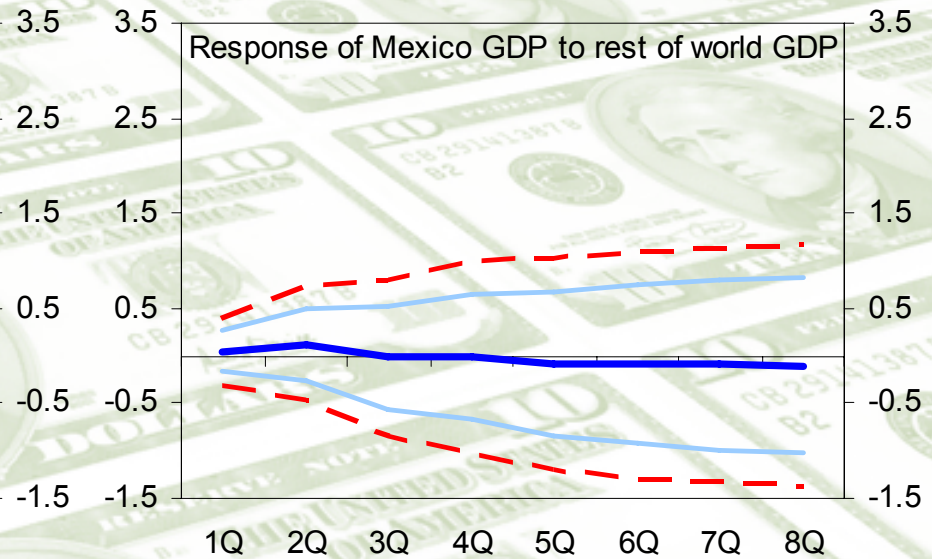
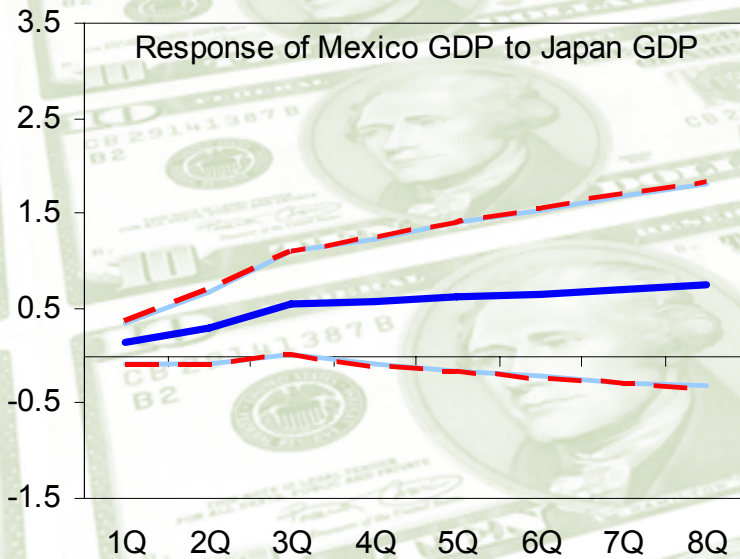
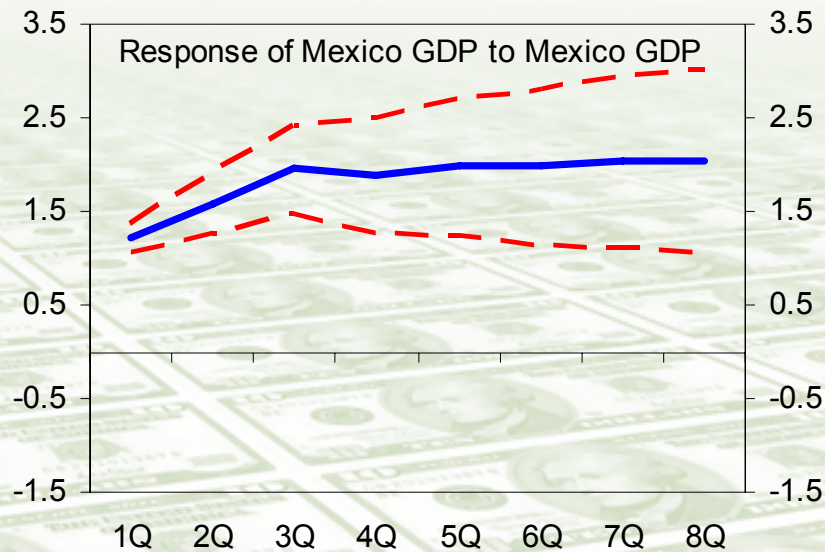
U.S. Spillovers to Canada by Subsample



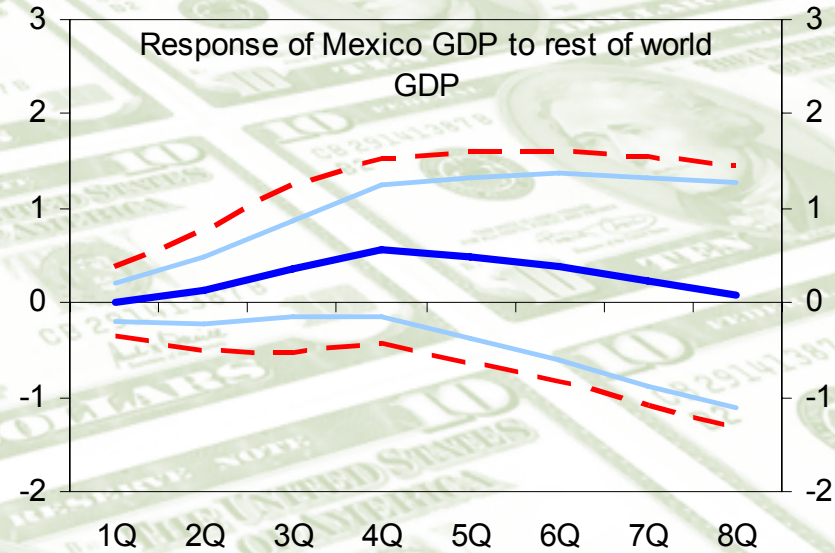
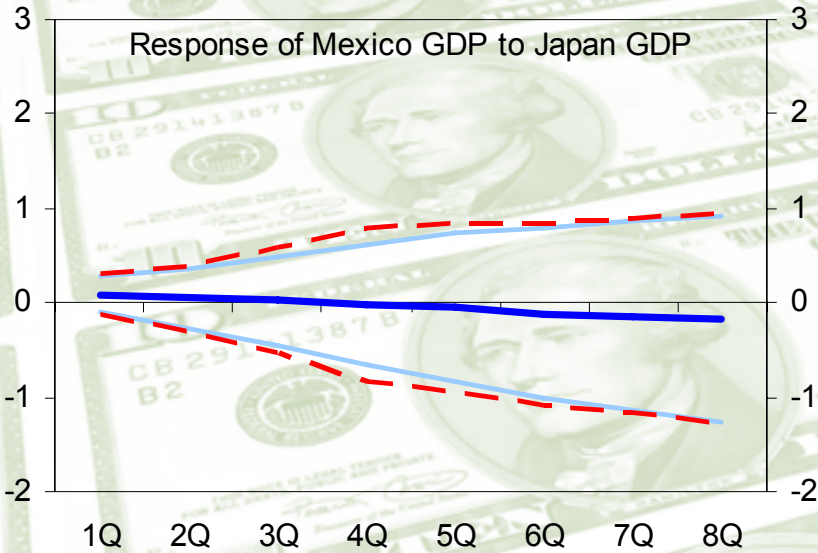
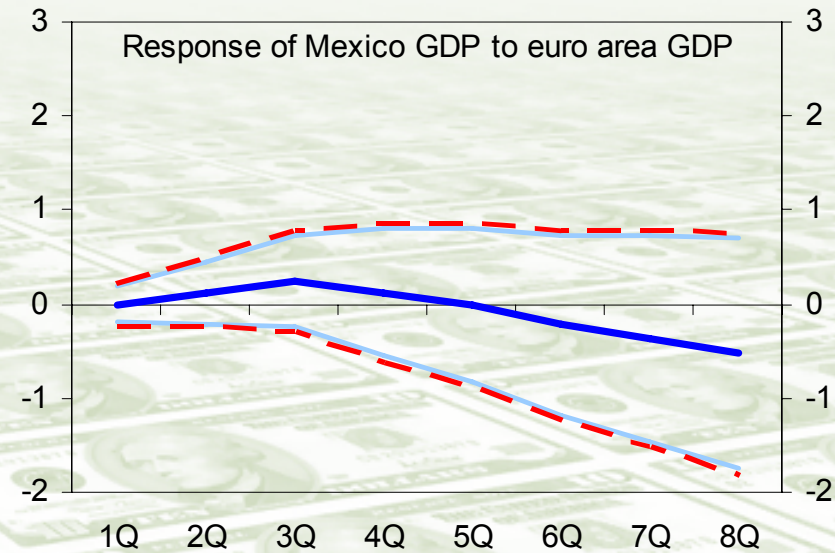
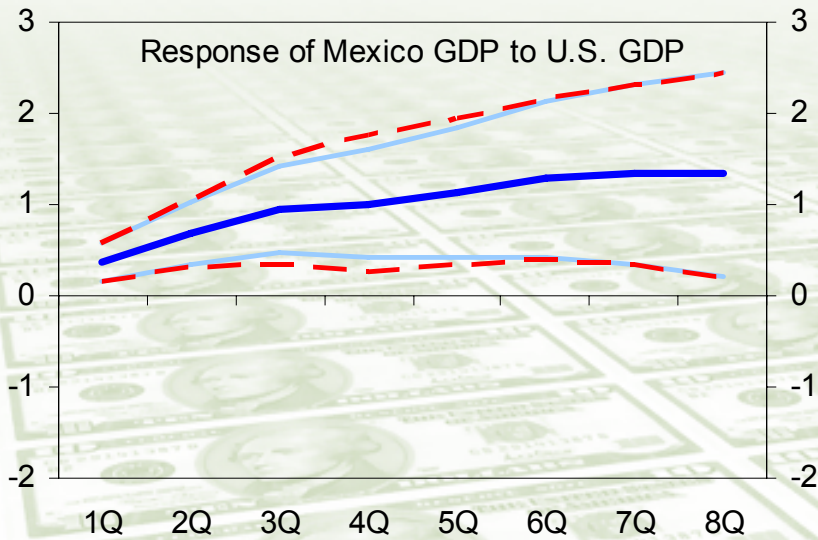
Full Sample Spillovers: Mexico



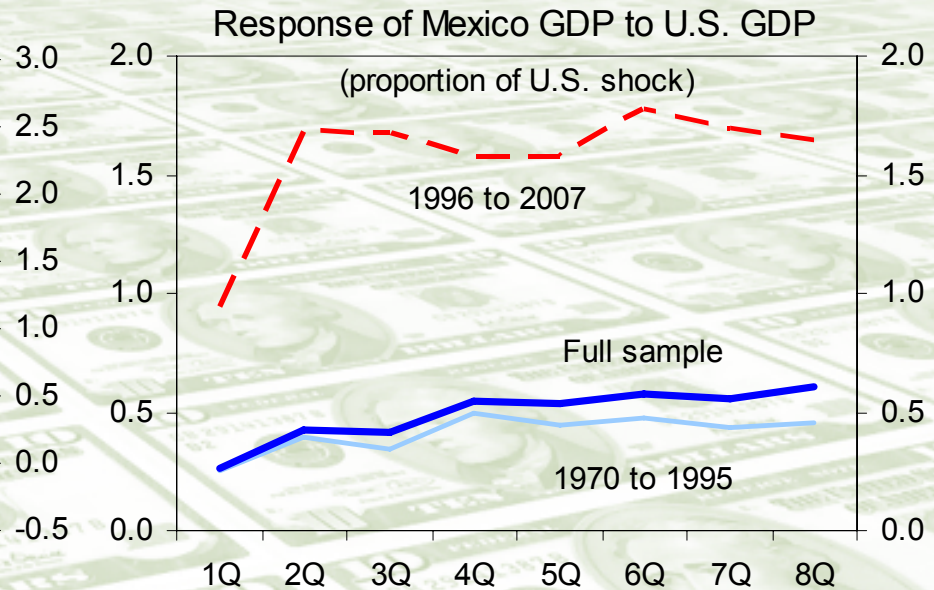
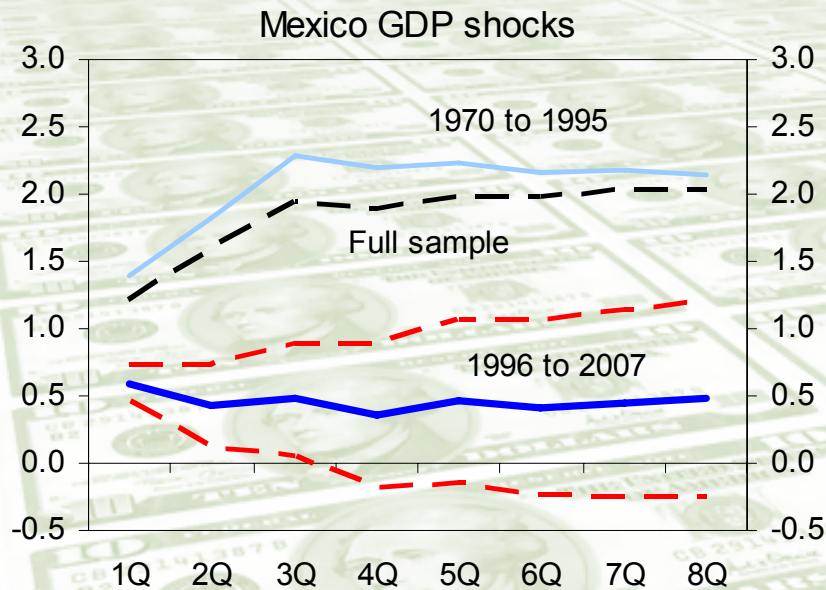
Full Sample Spillovers: Mexico



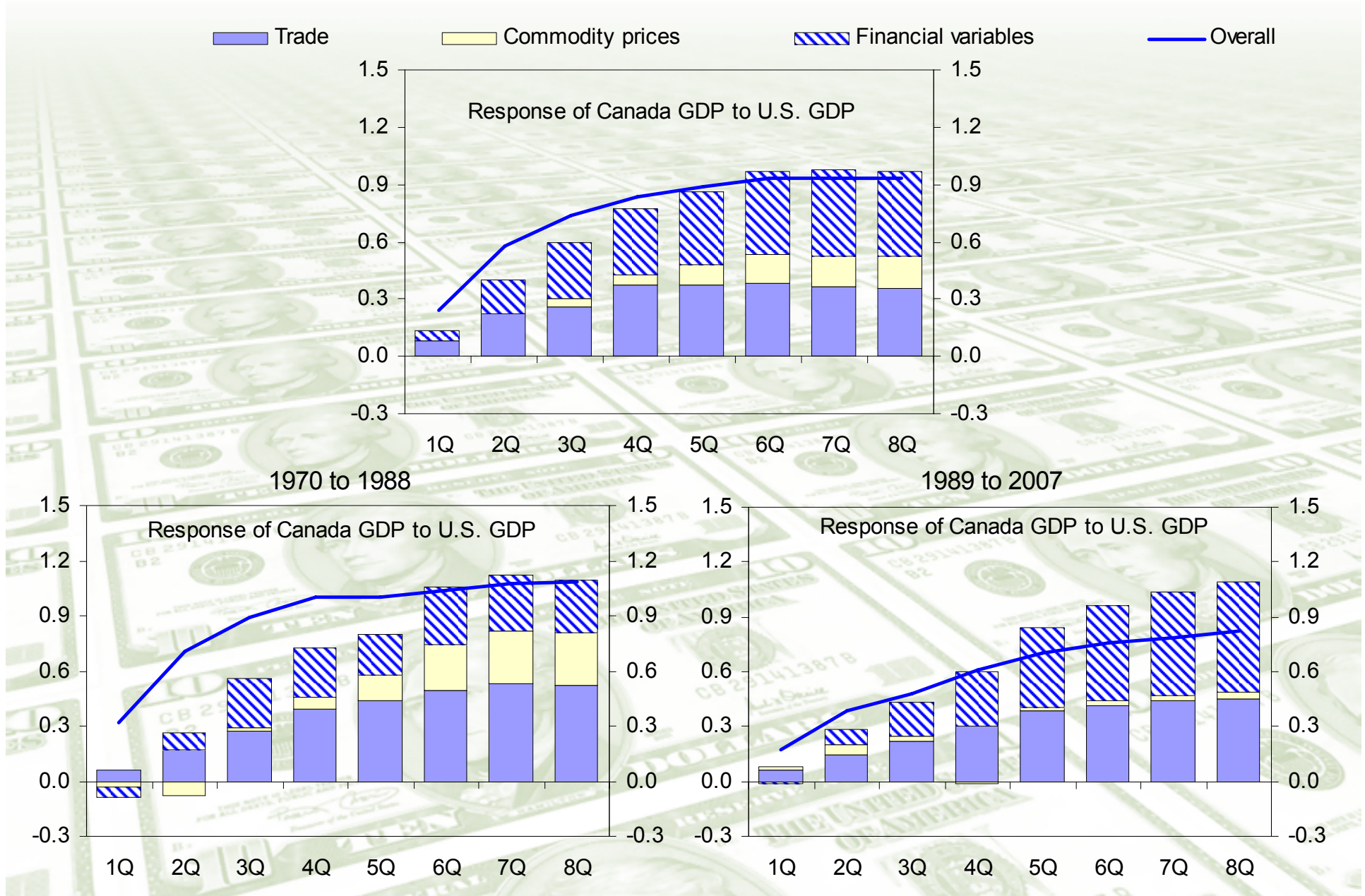
Spillovers Since 1996: Mexico



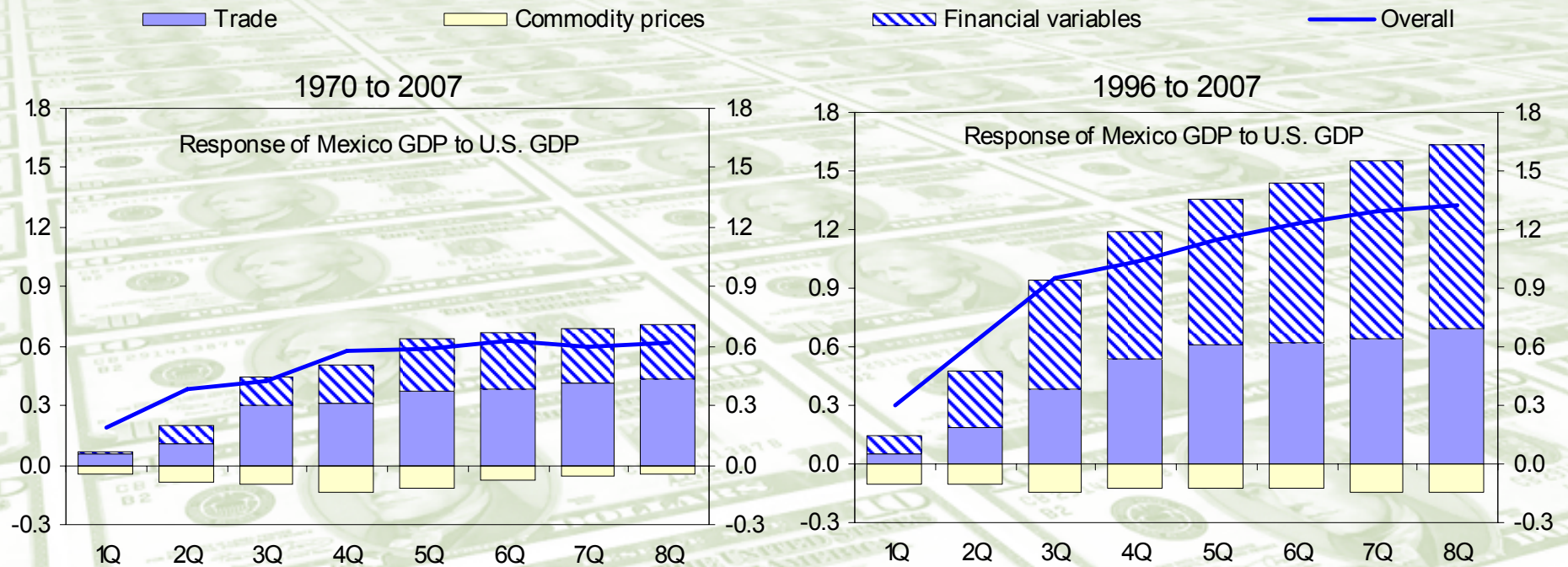
Mexican Shocks and Responses



Sources of U.S. Spillovers to Canada



Sources of U.S. Spillovers to Mexico



Summary of Results

- ***Response to one percentage point shock to U.S. GDP:***

Canada: $\frac{3}{4}$ points, Mexico: $1\frac{1}{2}$ points.

- ***Financial market variables:*** main source of U.S. spillovers, having increased over time.
- ***Trade spillovers*** also matter, while commodity prices play a modest role.
- ***Robust*** to assumptions about ordering of U.S. and global shocks.

Conclusions

- Great moderation in U.S. output volatility played a large role in reducing spillovers and dampening fluctuations elsewhere.
- With spillovers transmitted through financial channels, current market turbulence could still have large impact.
- Impact of integration for Canada: have tighter linkages been offset by increased freedom of domestic policy to respond to external shocks?
- For Mexico: difficult to separate role of NAFTA from effects of other elements of domestic macroeconomic stabilization.
- Methodology could be applied to other countries to estimate sensitivity to external factors.