



***Exogenous Oil Supply Shocks: How Big Are They
and How Much Do They Matter for the U.S.
Economy?
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***The views expressed in this presentation are those of the author.
No responsibility for them should be attributed to the Bank of Canada.**



This paper examines

- Effects of oil production shortfalls
- Caused by wars and other exogenous political events in OPEC countries
- On oil prices, US real GDP growth, US CPI inflation



This paper does NOT examine

- Effects of wars and other exogenous political events in OPEC countries on oil prices, US real GDP growth, US CPI inflation
- Effects of exogenous oil supply shocks (from any source)
- Effects of oil price shocks on US real GDP growth, US CPI inflation



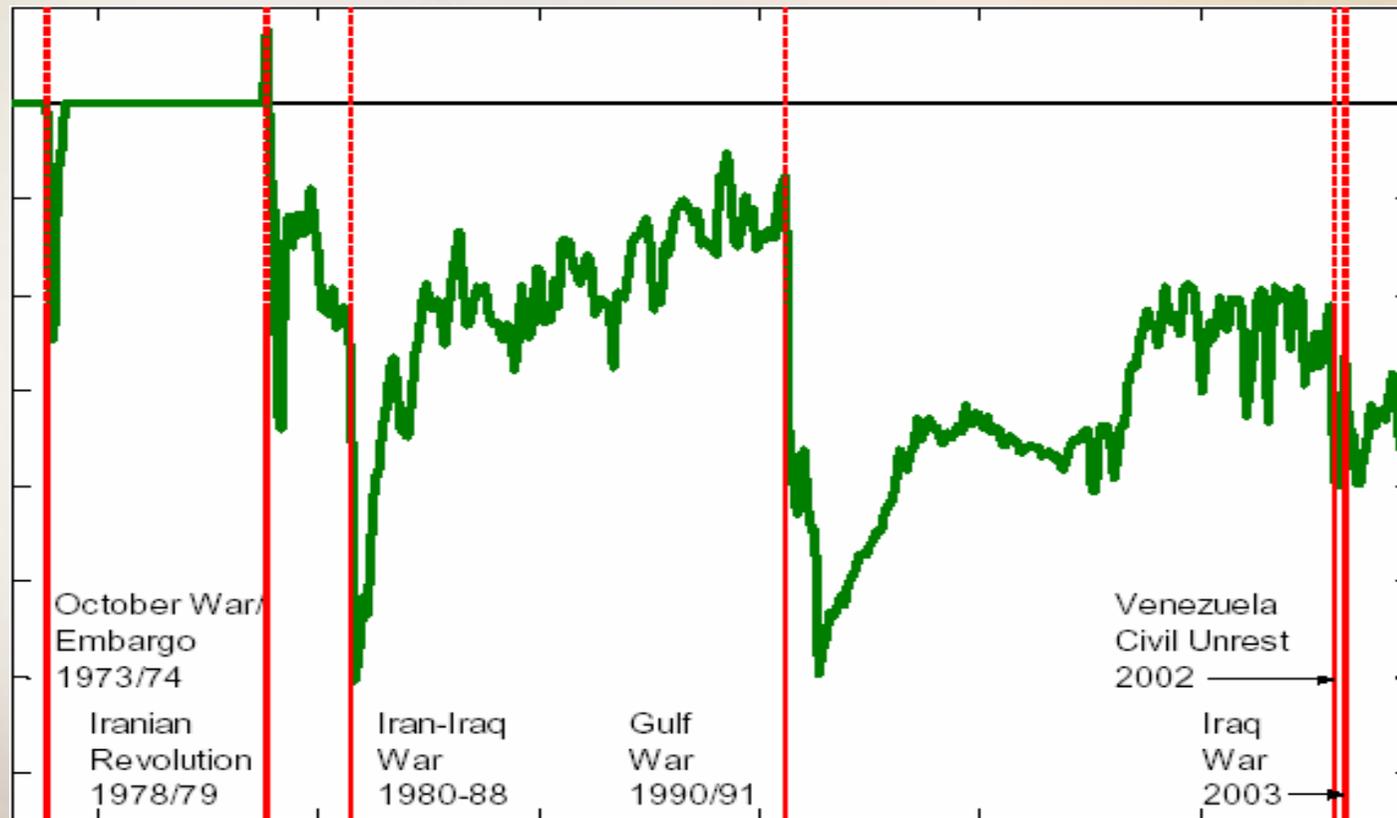
Stage 1- Production shortfalls

- Estimate oil production shortfalls caused by wars and other exogenous political events in OPEC countries
 - Excludes production shortfalls due to other exogenous sources (eg. Hurricane Katrina)
- Reasonable counterfactuals are an improvement over the status quo
- Careful analysis of historical documents to verify interpretation of data



The result ...

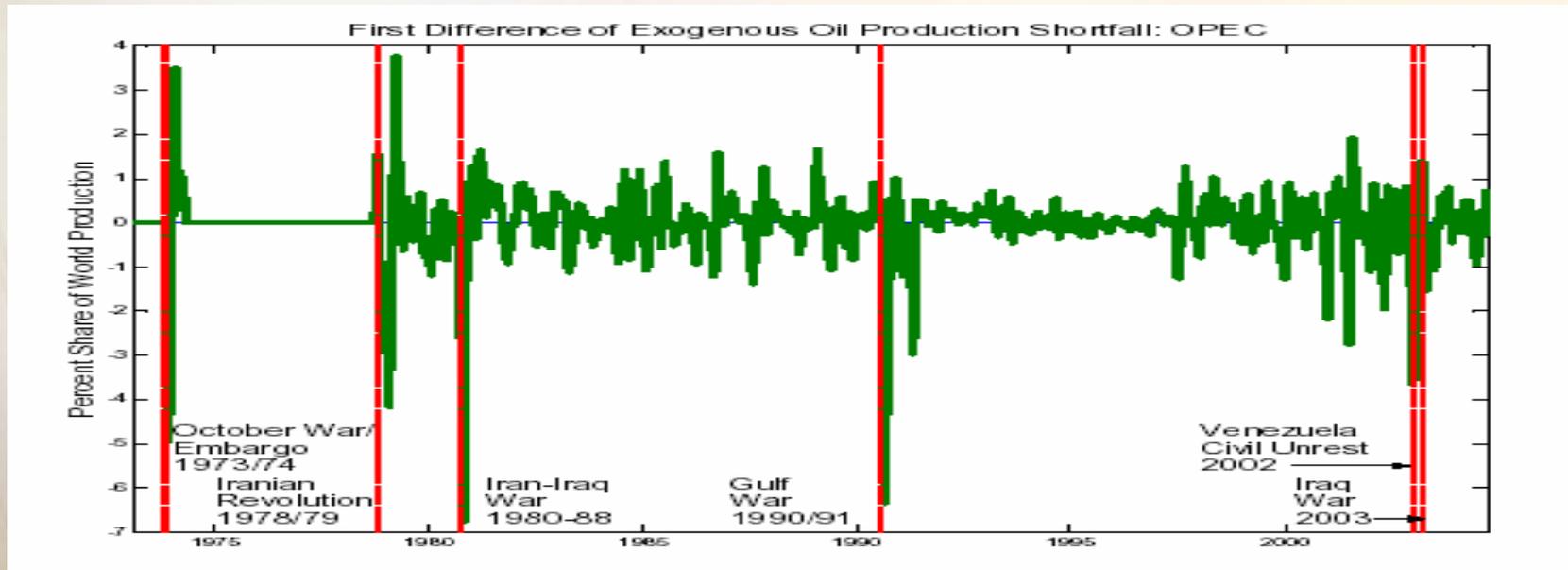
Exogenous OPEC Oil Production Shortfalls





Stage 2 - Shocks

- Construct a corresponding measure of exogenous oil supply shocks by taking the difference of the constructed production shortfall series





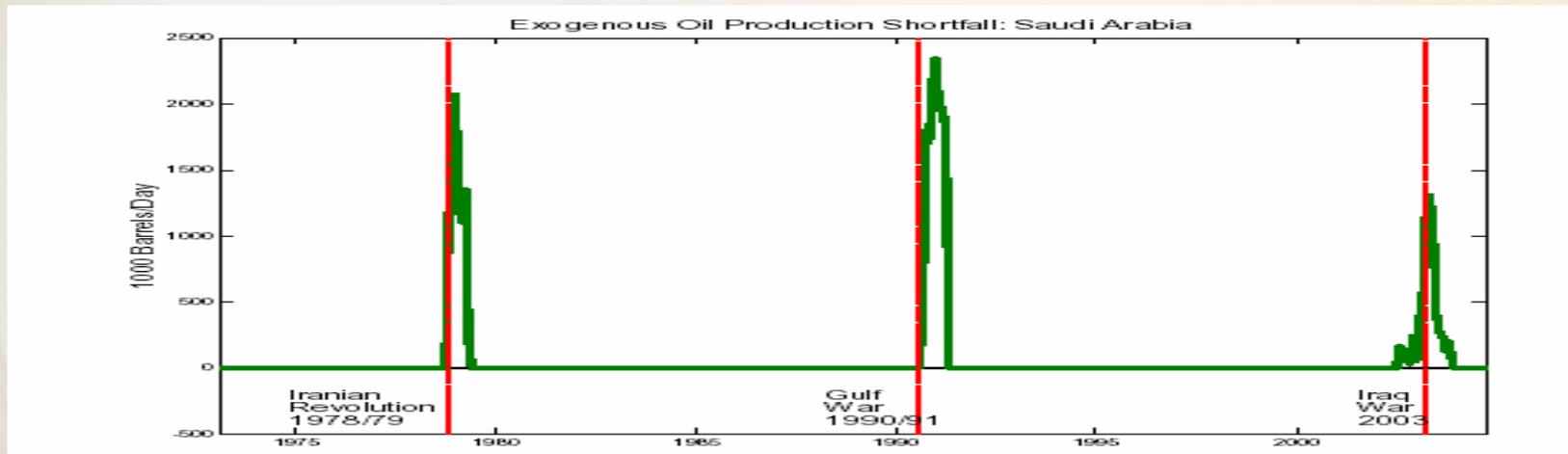
What is a “shock”?

- Perhaps the shock should be the *unforecastable component* of the production shortfall
- The difference of the production shortfall might not equal the unforecastable component?
- To the extent that some contributions might be highly persistent (even if not permanent), differencing is reasonable
- But, other contributions are more likely to be temporary...



SA as a supplier of last resort

- “the response of Saudi production to the revolution—like the Arab oil embargo—is treated as strictly temporary”



- but, it is differenced to construct the shock



Stage 3 - Effects

- Estimate the effects of exogenous variations in the production of oil on US macro aggregates



Understated effects of crises on oil prices

- Should *expected* supply disruptions be treated differently than *actual* supply disruptions?
- Theory says current commodity prices are the max of:
 - The price that equilibrates supply and demand, including demand for inventories
 - Expected future prices, after allowance for carrying costs
- Wars/other political events leading to increased *probabilities of future* oil production shortfalls will affect *current* prices
- Such links are excluded ? effects on oil prices of wars/political crises are larger than reported



Reader warning: Don't misinterpret results!

- “exogenous oil productions shortfalls [caused by wars and other exogenous political events in OPEC countries] are of limited importance in explaining oil price changes during crisis periods”
- But, the crises may be the source of considerable variation in oil prices through avenues other than actual production shortfalls
- And, if other exogenous oil supply shocks were included, the link between oil supply shocks and oil prices may be stronger
- Similarly, oil price shocks likely have larger macro effects than estimated in the paper