

# Can Cheap Oil Hurt Net Importers? Evidence from the Philippine Economy

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# Motivation: Recent Oil Price Drops

Brent Crude Oil, 1970-2016 (USD/BBL)



SOURCE: WWW.TRADINGECONOMICS.COM | ICE

The Economist

Topics

Print edition

More

Cheaper oil

## Winners and losers

America and its friends benefit from falling oil prices; its most strident critics don't



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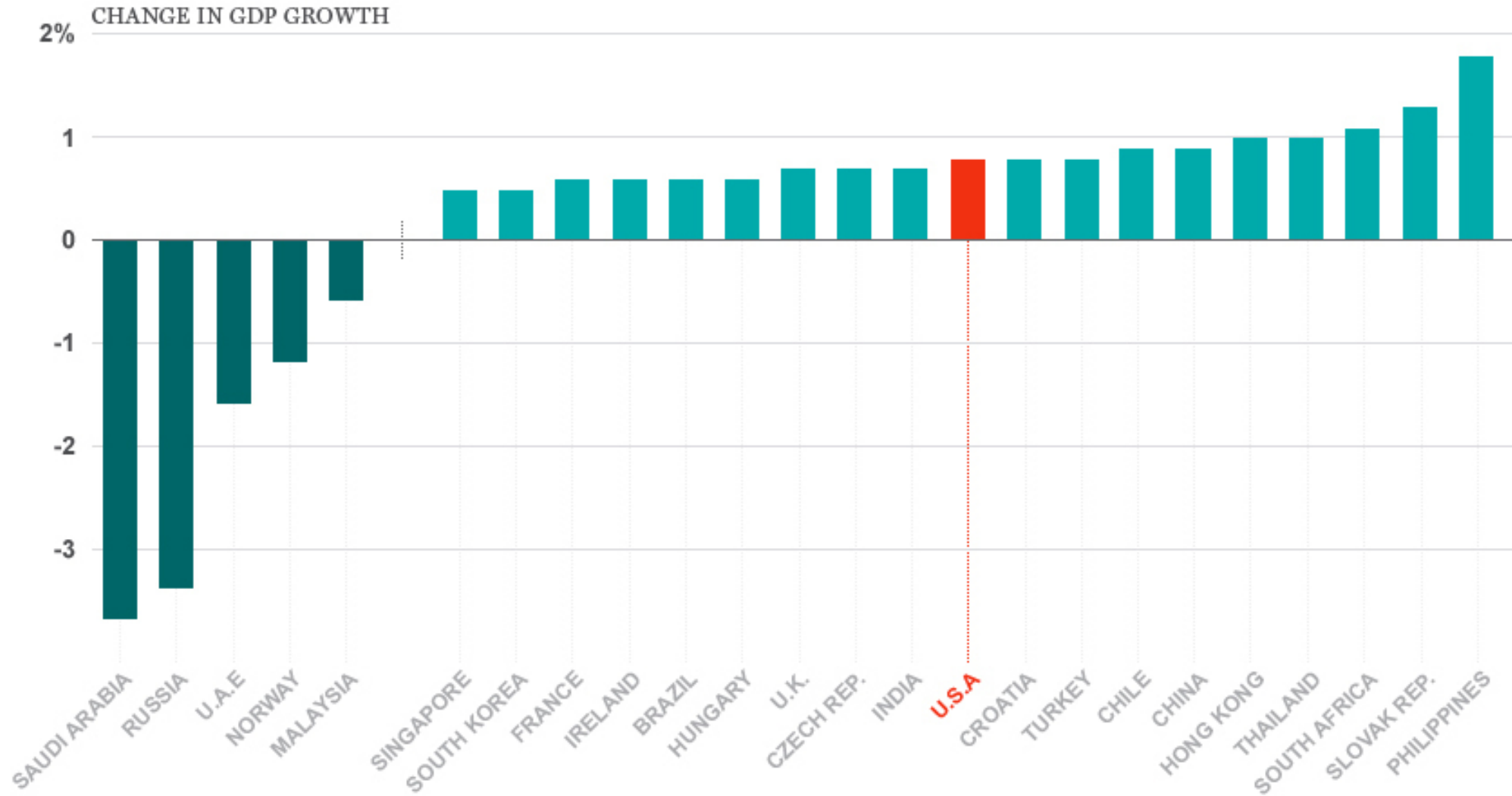
## Falling oil prices: Who are the winners and losers?

By Tim Bowler  
Business reporter, BBC News

© 19 January 2015 | Business



# Motivation: Conventional Wisdom



# Motivation: Focus on US

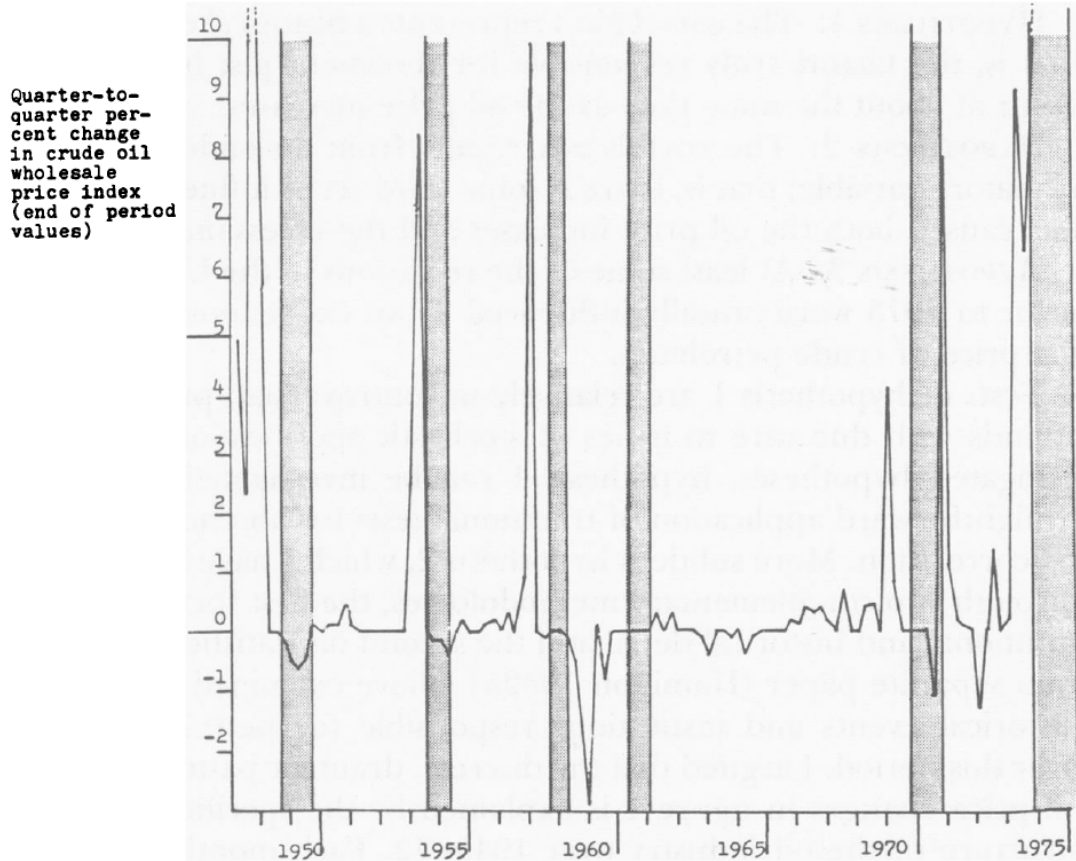
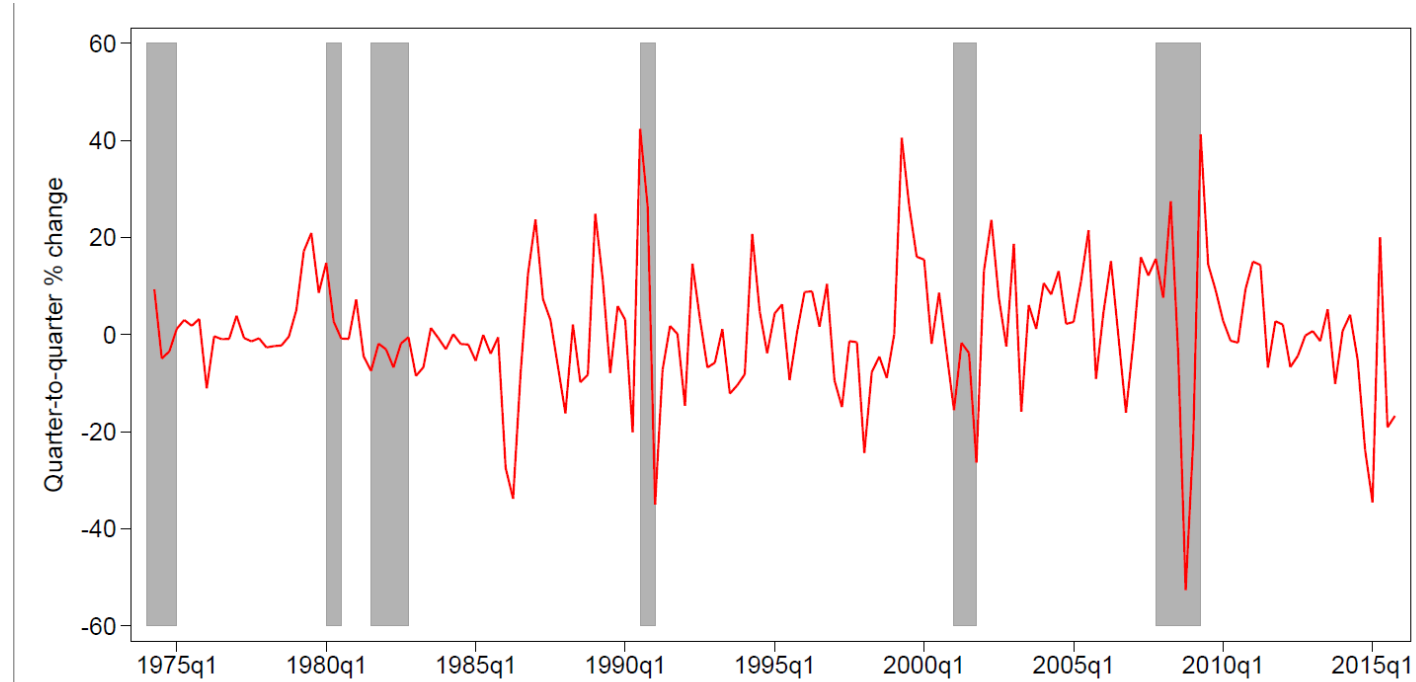


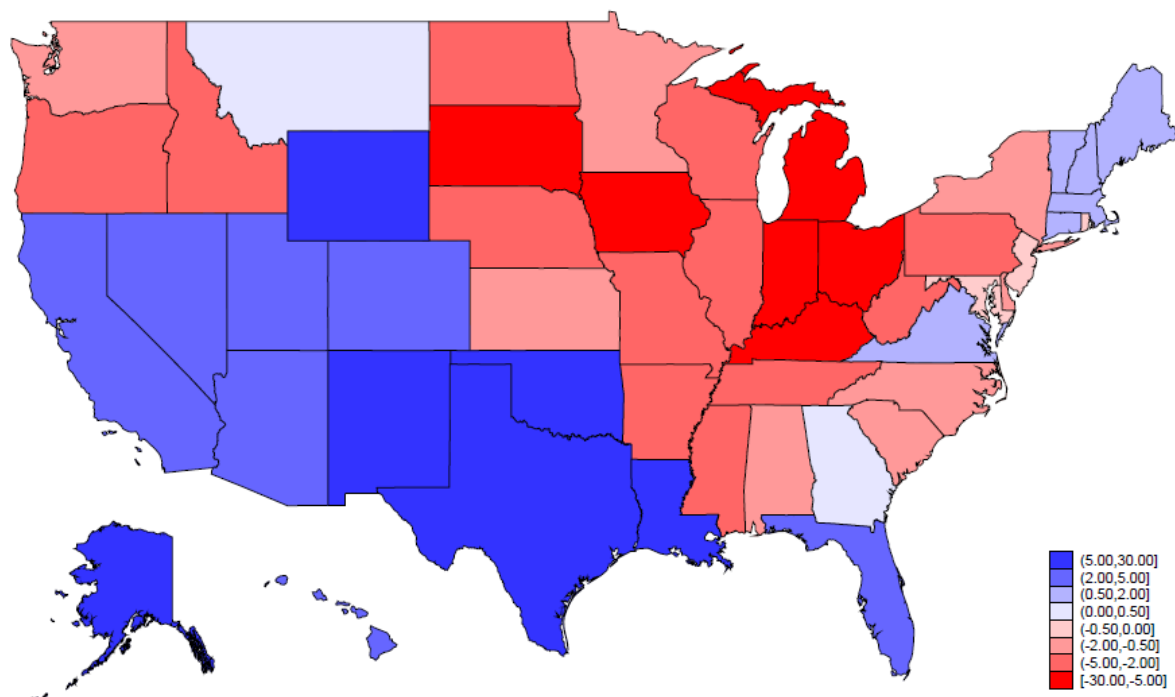
FIG. 1.—Changes in crude oil prices (solid lines) and U.S. recessions (shaded areas), 1947–75.

Source: Hamilton, 1983



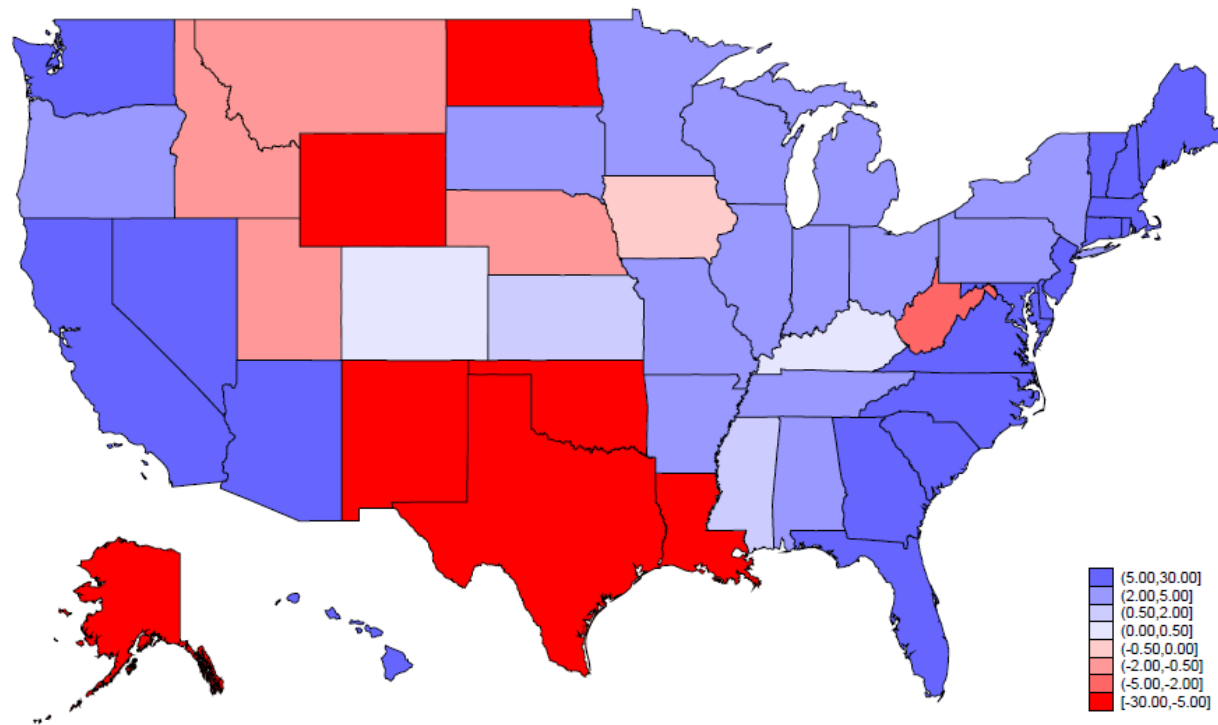
Source: EIA, NBER

# Motivation: US States' Experience



Energy sources include Crude Oil/Petroleum and Natural Gas. Imported Price of Crude Oil is measured at 2014\$.  
Source: EIA, SEDS.

1980 Oil Price Surge



Energy sources include Crude Oil/Petroleum and Natural Gas. Imported Price of Crude Oil is measured at 2014\$.  
Source: EIA, SEDS.

1986 Oil Price Drop

# Motivation: Little Attention to Developing Countries

Many studies on oil price-macroeconomy relationships focusing on:

- ❑ US economy (Hamilton, 1983, 1996, 2005, 2009; Bernanke et al., 1997; Barsky and Kilian, 2004; Kilian 2008, 2009)
- ❑ Advanced economies
  - ❑ Jimenez-Rodriguez and Sanchez (2004) for G-7 countries
  - ❑ Jimenez-Rodriguez (2008) on 6 OECD countries

# Motivation: Little Attention to Developing Countries

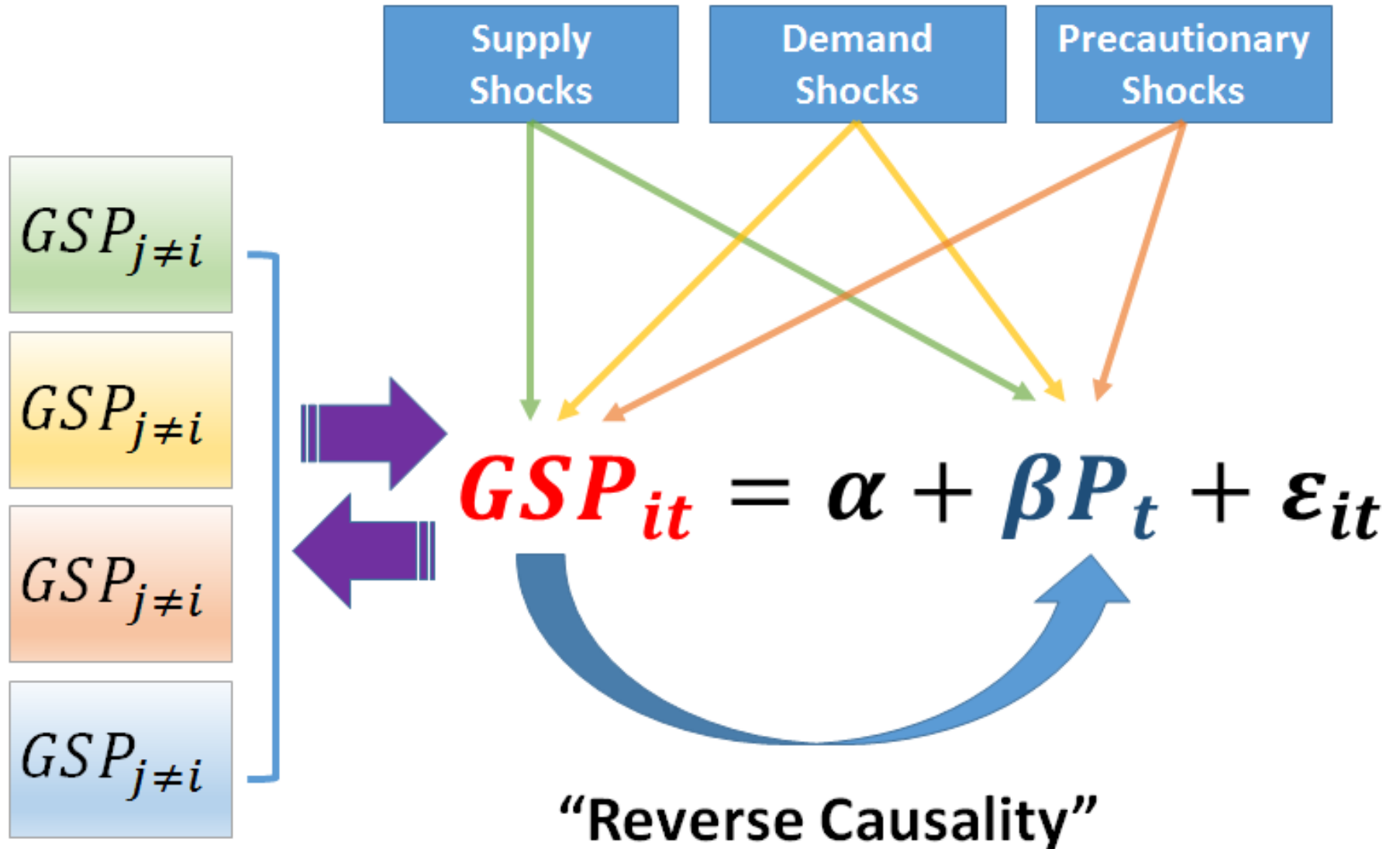
**Very few on non-OECD countries (Brown and Yucel, 2000; Rasmussen, 2011)**

- **Within the few non-OECD, very little on oil-importing countries.**
  - ❑ **Berument, et al., (2010) on MENA countries**
  - ❑ **Jumah and Pastuszyn (2007) on Ghana**
  - ❑ **Wakeford (2006) and Bouzid (2012) on South Africa and Tunisia**

**Assumed oil price change is exogenous**

**Analysis assumed no indirect effect through trade**

# Motivation: Oil-Price Macro is Complicated!



Kilian, et al. (2007)

Rasmussen (2011)

Brucal and Roberts (2016)



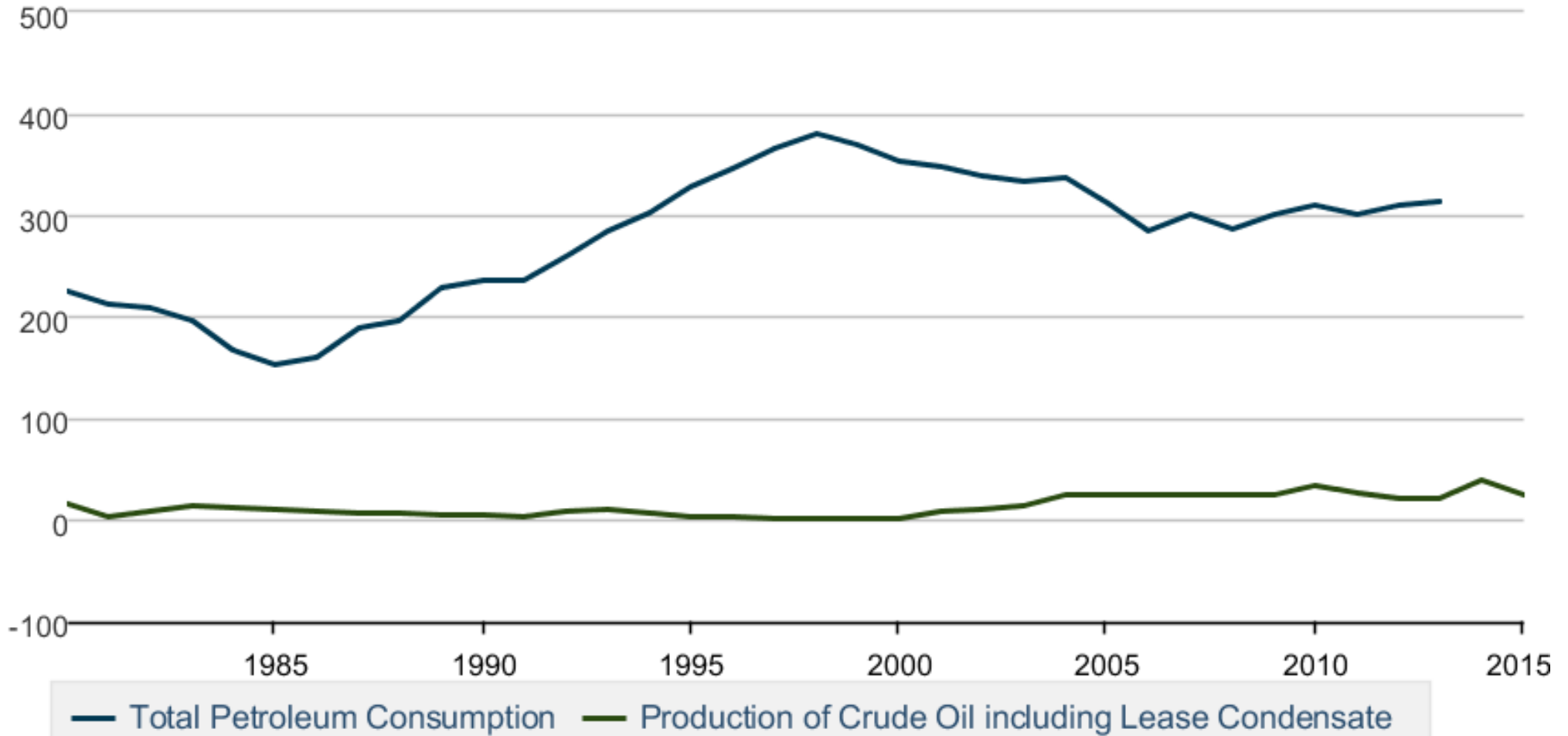
# This Study

**Assesses the dynamic relationship between oil prices and output in the Philippines**

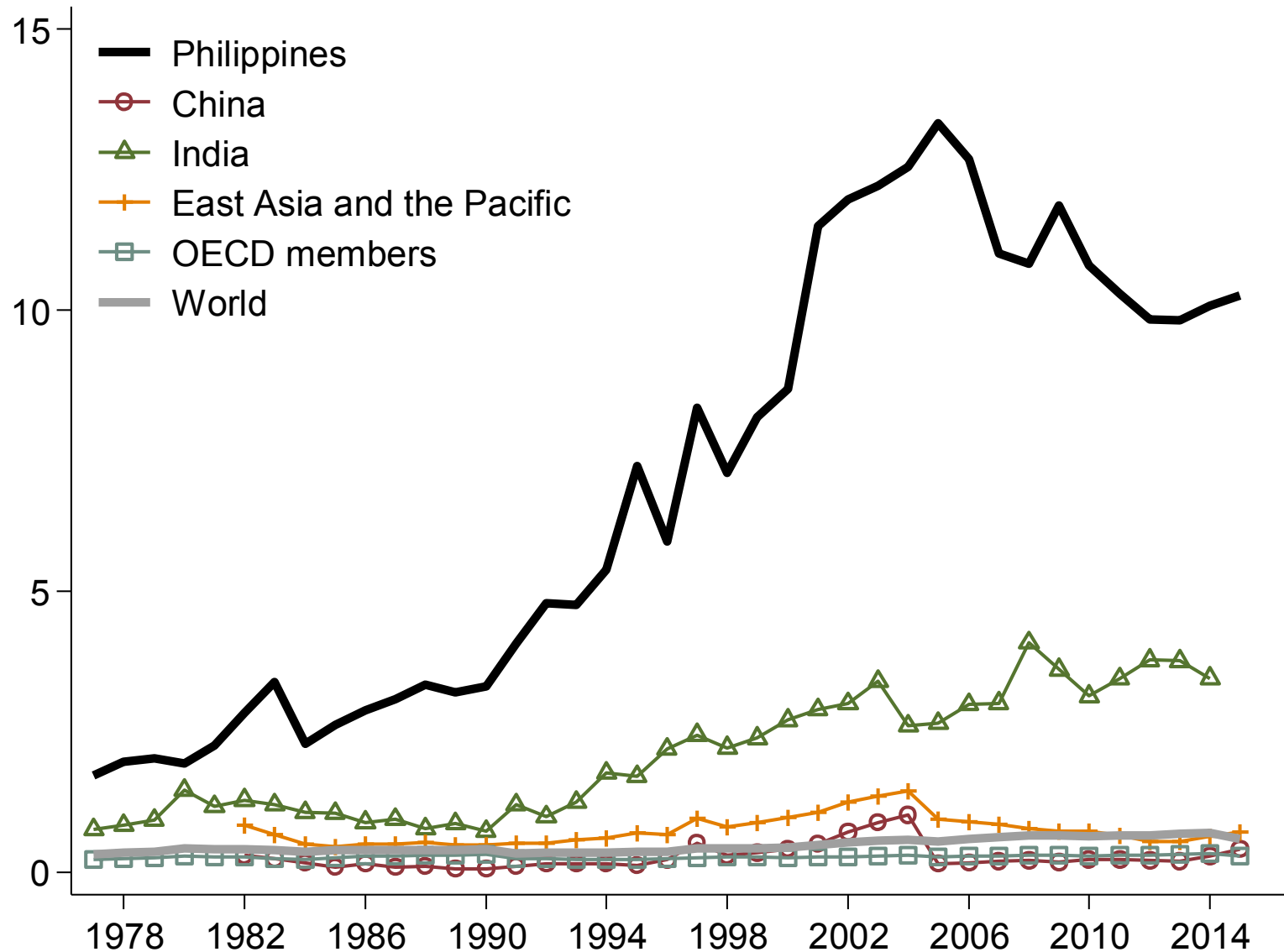
- **Apply Kilian's (2008) structural decomposition of oil price shocks**
- **Analyze subcomponents of output to explore other potential mechanisms**

# Philippine Crude Oil Production and Consumption

Thousand Barrels Per Day

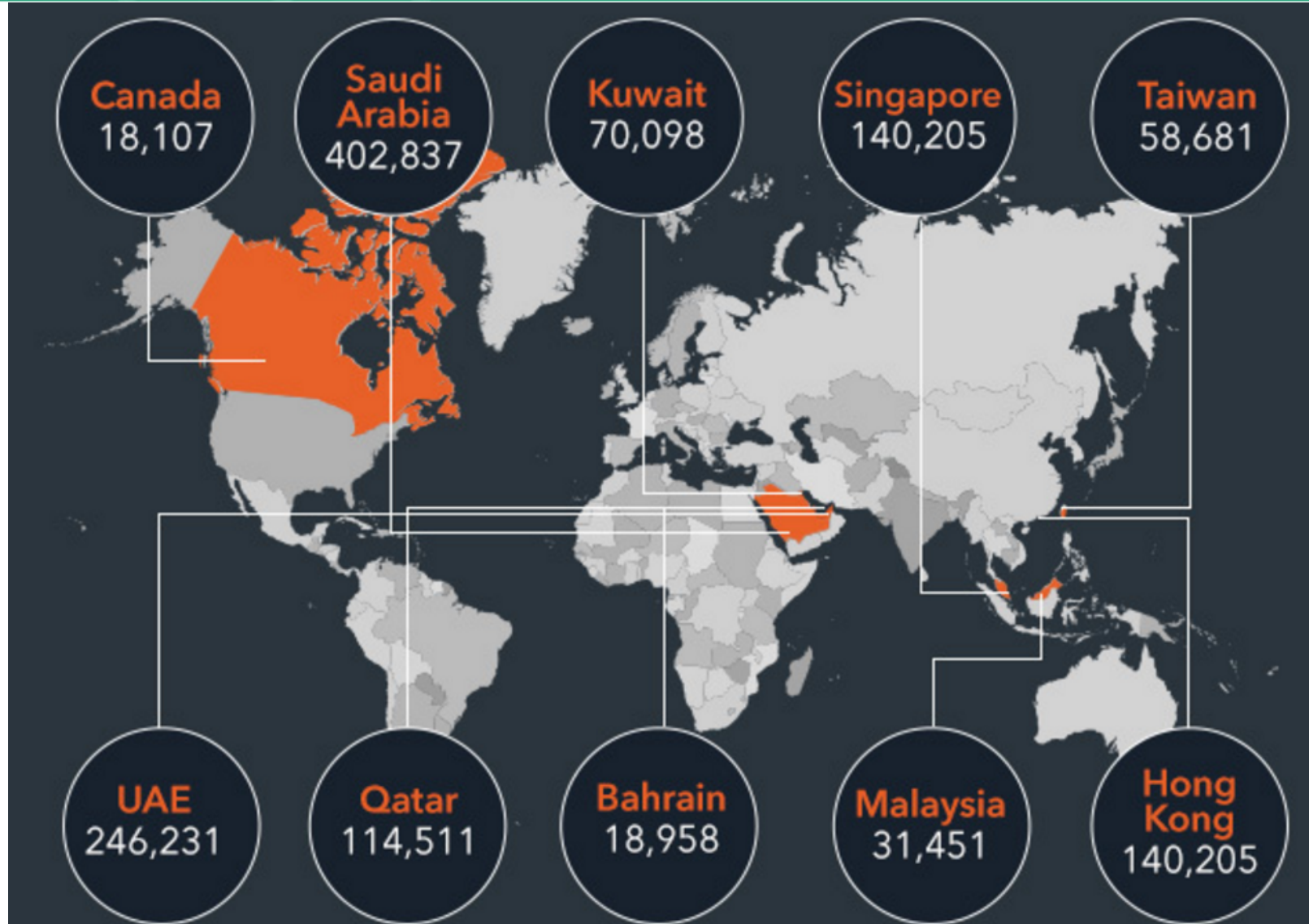


# Personal Remittance Received, 1977-2016



Source: WDI

# Top OFW Destinations, 2014



Source: POEA  
(Rappler.com)

# Empirical Strategy

## Near-VAR Estimation Strategy (Kilian, 2009)

VAR model based on monthly data:  $z_t = (\Delta prod_t, rea_t, rpo_t)'$

Sample Period: 1974.1 – 2015.12

Structural (Recursively Identified) VAR:  $A_0 z_t = \alpha + \sum_{i=1}^{24} A_i z_{t-i} + \varepsilon_t$

Identification (Recursive Structure):

$$e_t = \begin{pmatrix} e_t^{\Delta prod} \\ e_t^{rea} \\ e_t^{rpo} \end{pmatrix} = \begin{bmatrix} \alpha_{11} & 0 & 0 \\ \alpha_{21} & \alpha_{22} & 0 \\ \alpha_{31} & \alpha_{32} & \alpha_{33} \end{bmatrix} \begin{pmatrix} \varepsilon_t^{oil\ supply\ shock} \\ \varepsilon_t^{commodities\ demand\ shock} \\ \varepsilon_t^{oil-specific\ demand\ shock} \end{pmatrix}$$

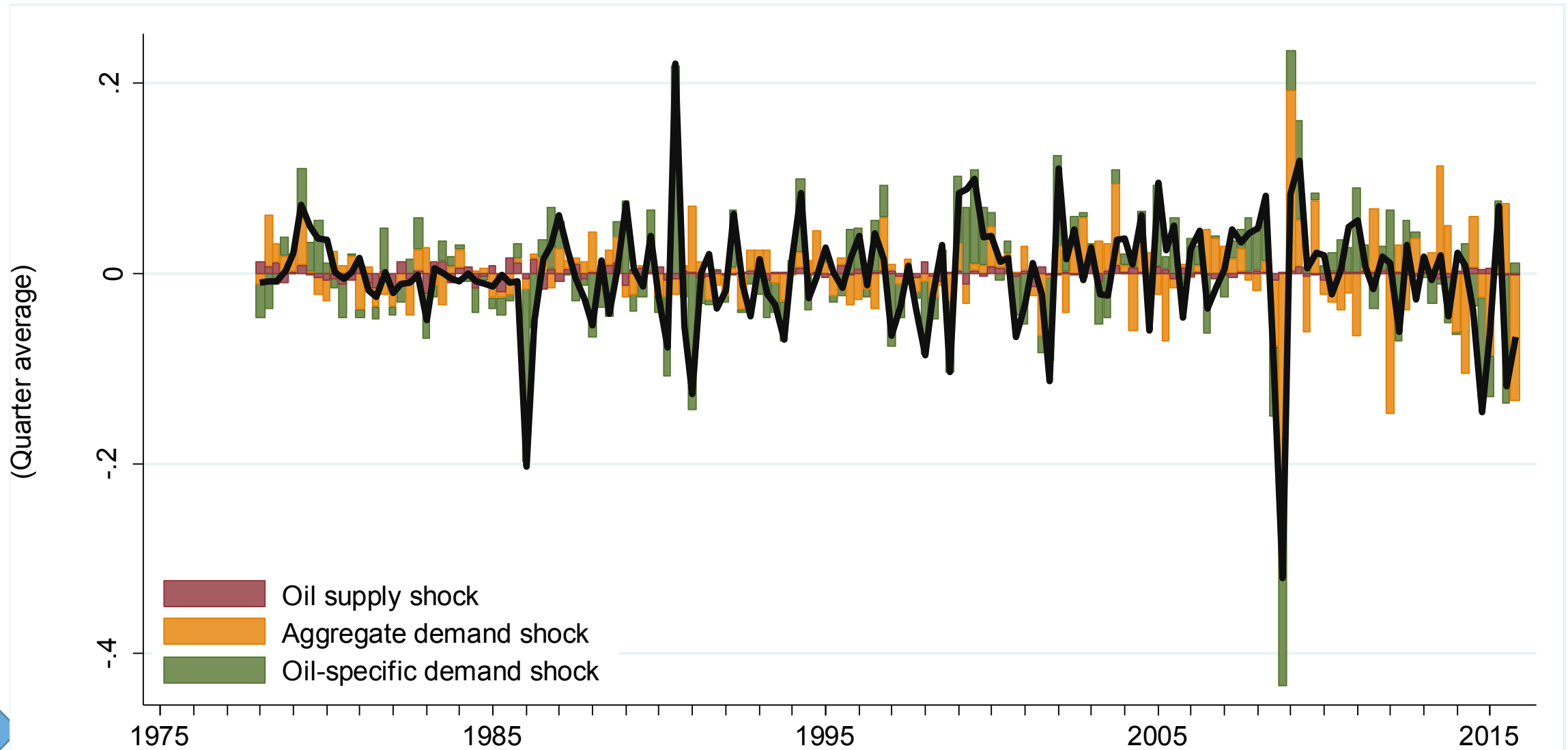
## Estimation of Shocks to Philippine Macroeconomic Aggregates:

$$\Delta y_t = \alpha_j + \sum_{i=0}^{12} \phi_{ji} \hat{\zeta}_{jt-i} + Qtr_k + \varepsilon_t, \quad j = 1, 2, 3$$

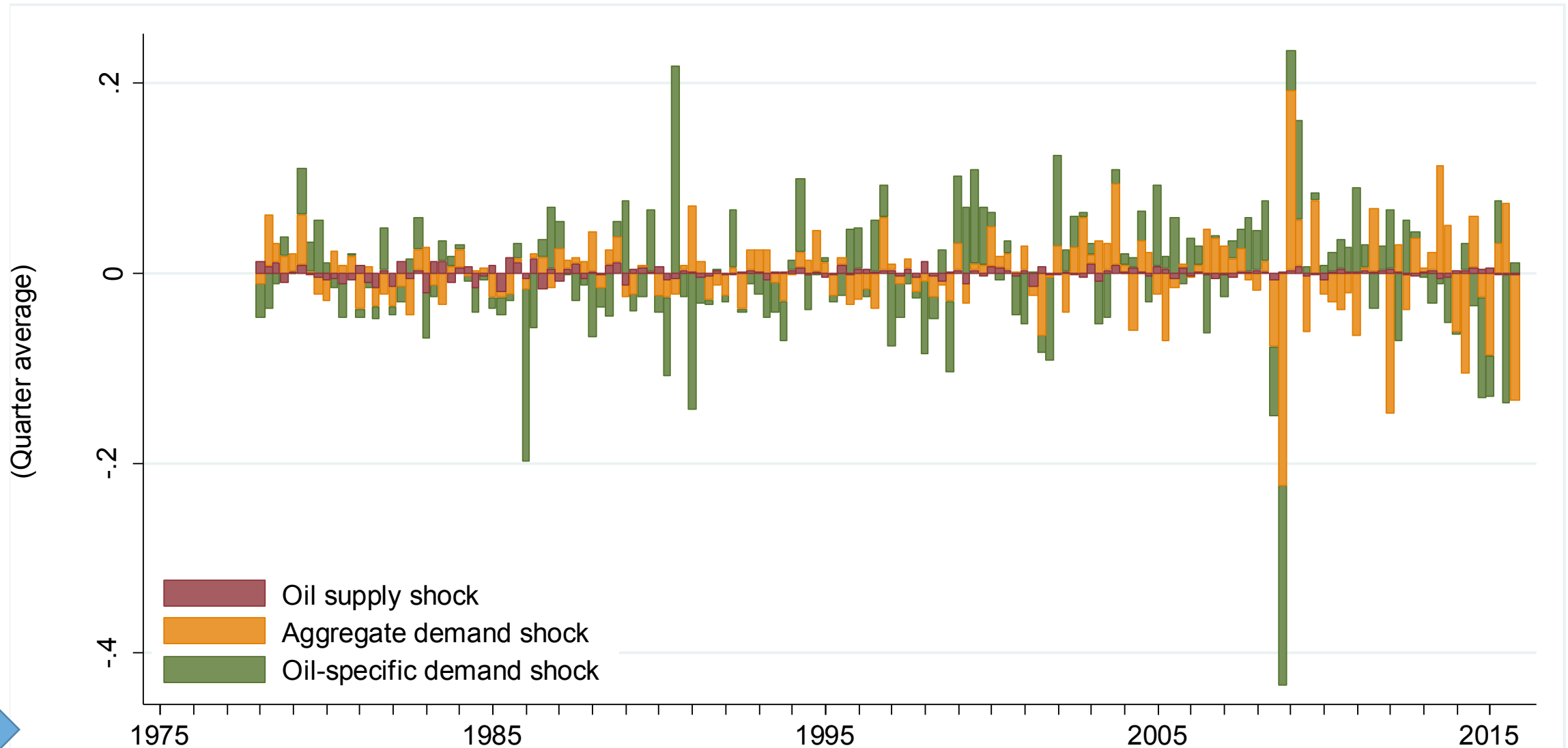
Where:

$$\hat{\zeta}_{jt} = \frac{1}{3} \sum_{m=1}^3 \hat{\varepsilon}_{jtm}, \quad j = 1, 2, 3$$

# Historical Decomposition of Oil Price Changes



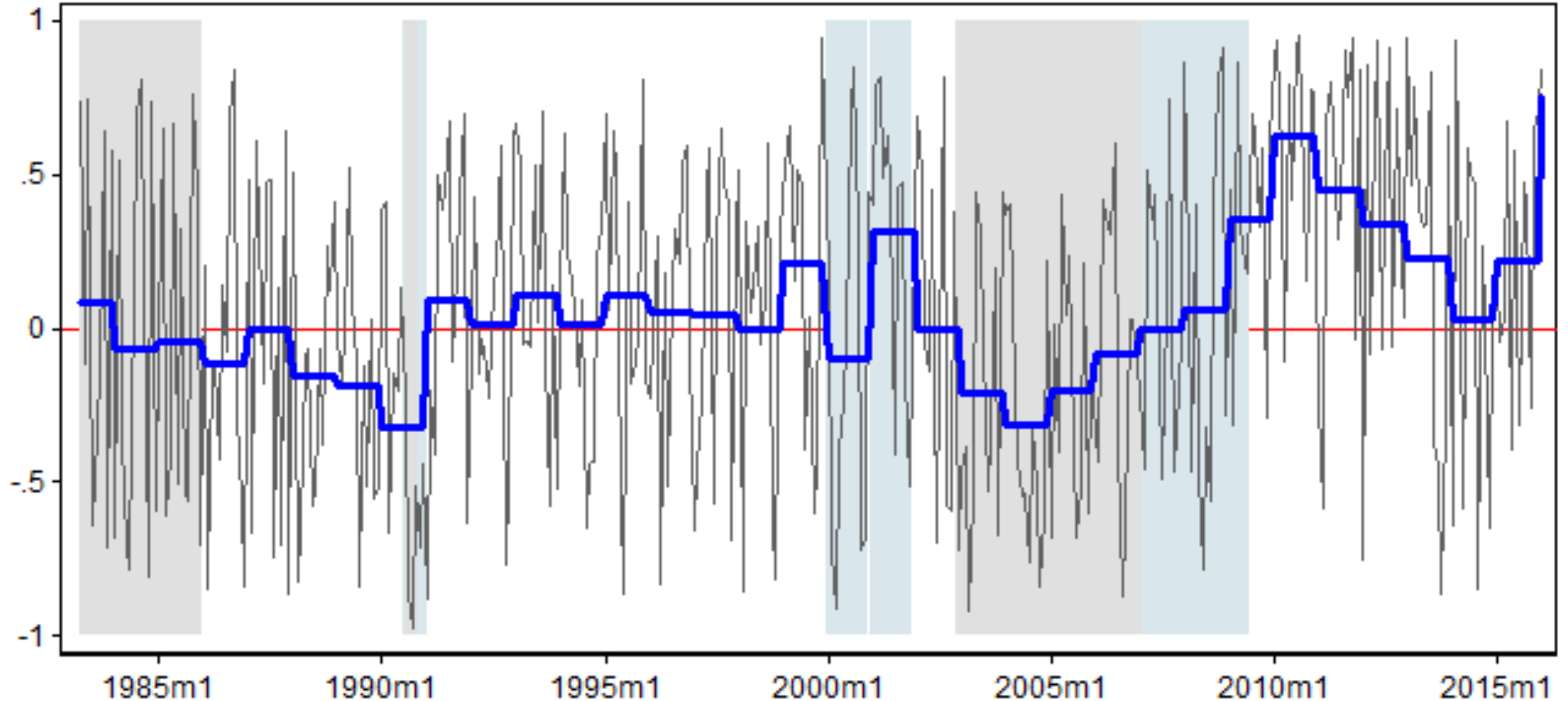
# Historical Decomposition of Oil Price Changes



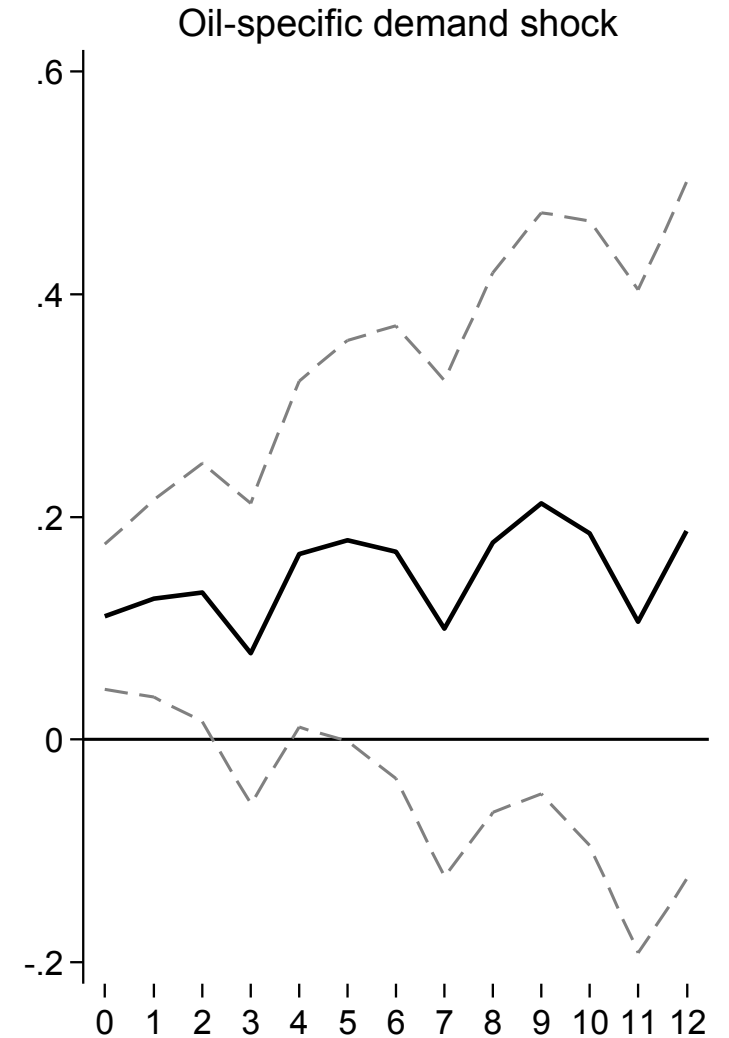
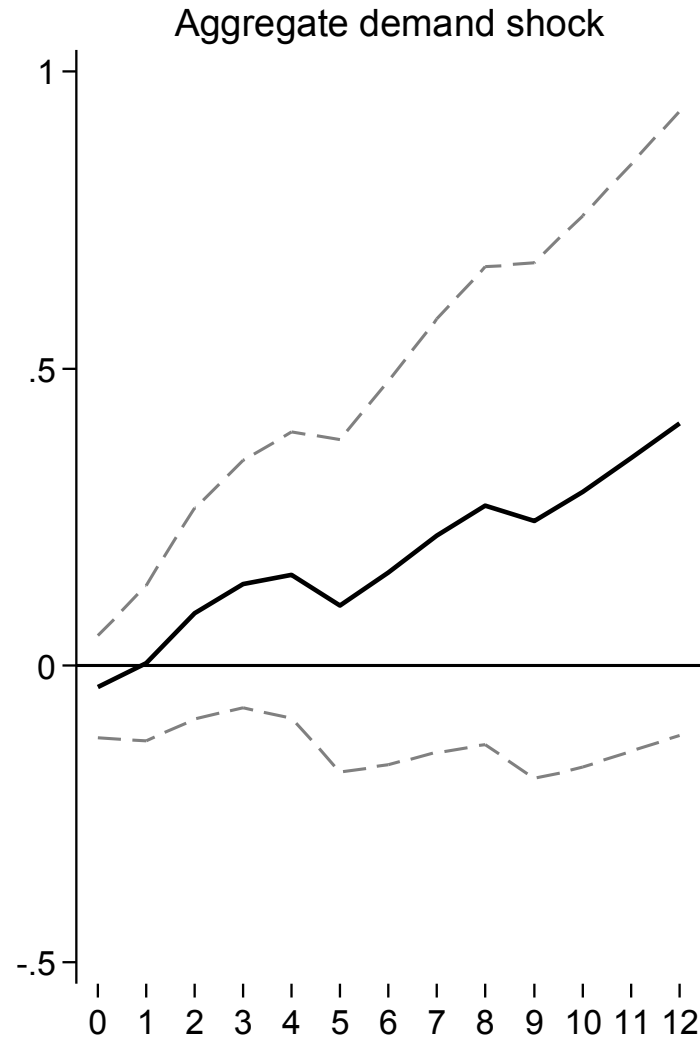
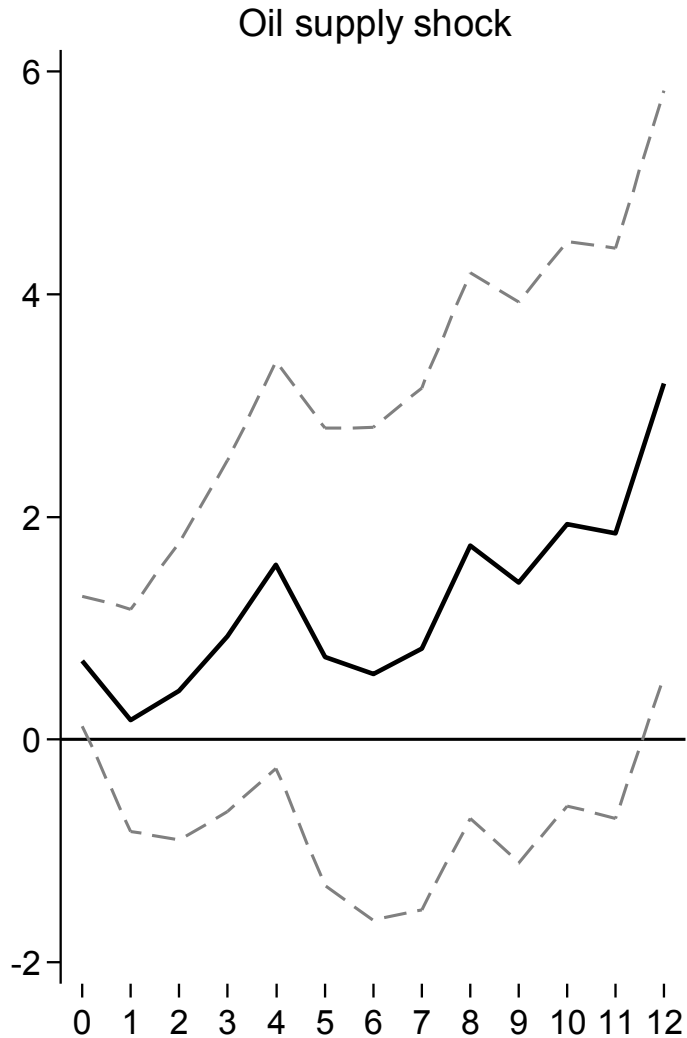


# Historical Decomposition of Oil Price Changes

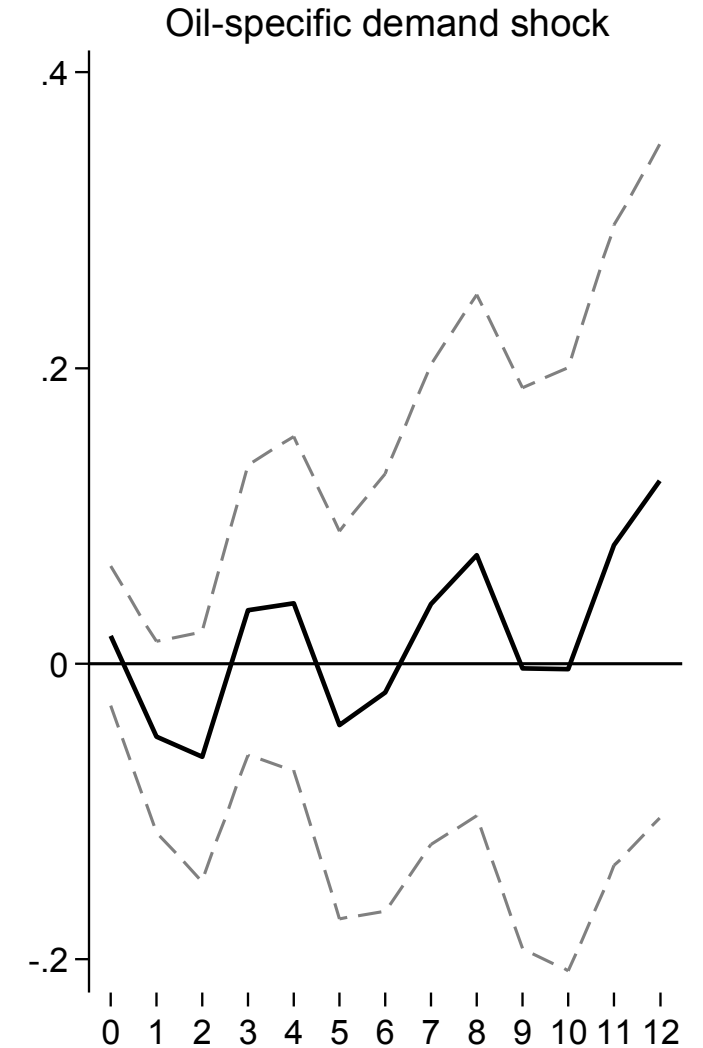
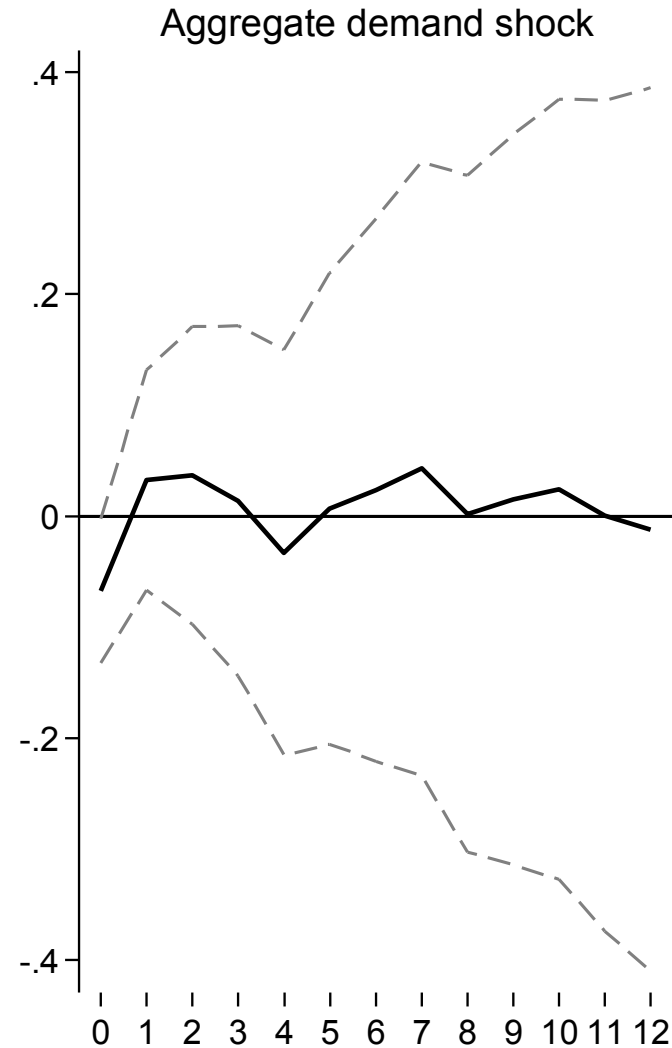
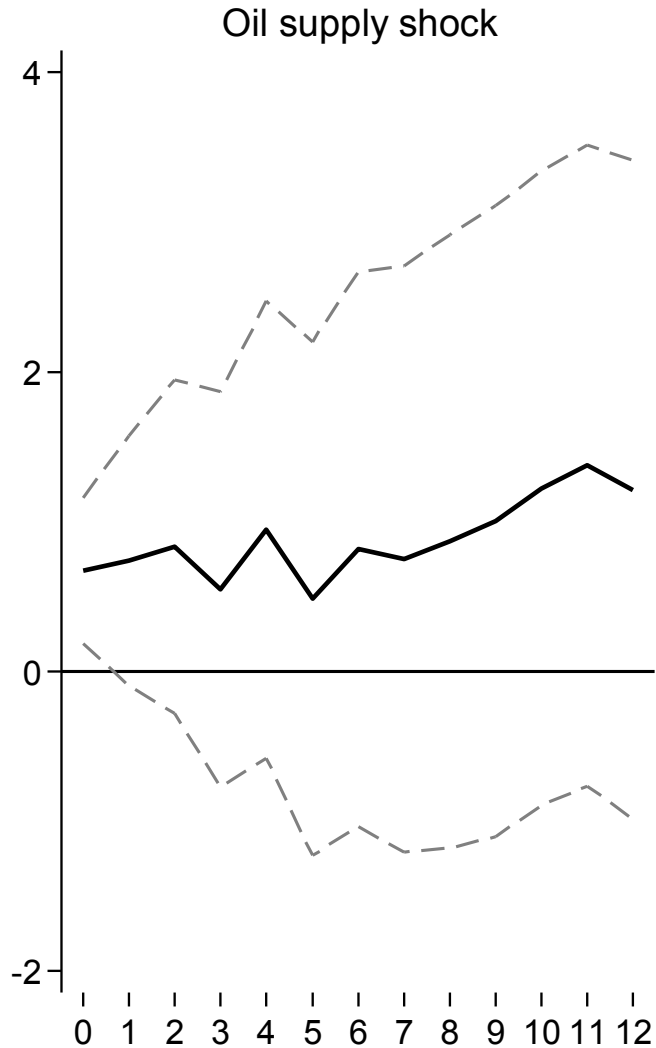
Correlation between S&P500 and Crude Oil Futures, Monthly Average



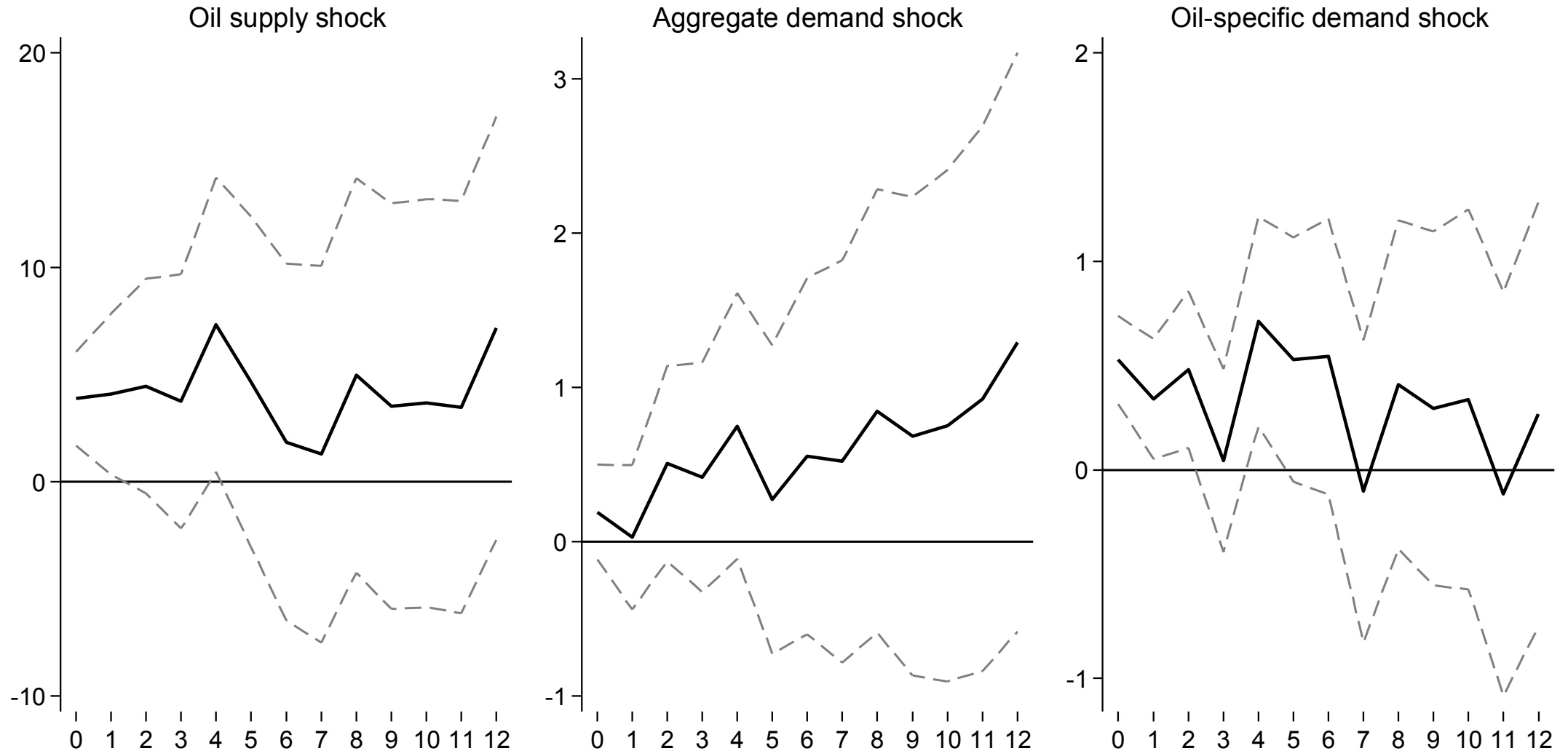
# Effect of Oil Price Shocks on the Philippine's GDP Growth



# Effect of Oil Price Shocks on the Philippine's Consumption Growth



# Effect of Oil Price Shocks on the Philippine's Export Growth



# Conclusion

- ❑ Effect of oil price shocks on net importers may be different, depending on what causes the shock.
- ❑ There may be offsetting effects that help mitigate the direct impact of oil price shocks to domestic economy.
- ❑ Net effect may be ambiguous.
  
- ❑ Given empirical results, the Philippine economy may have been hurt by the recent oil price decline.

# Mahalo!



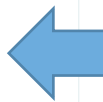
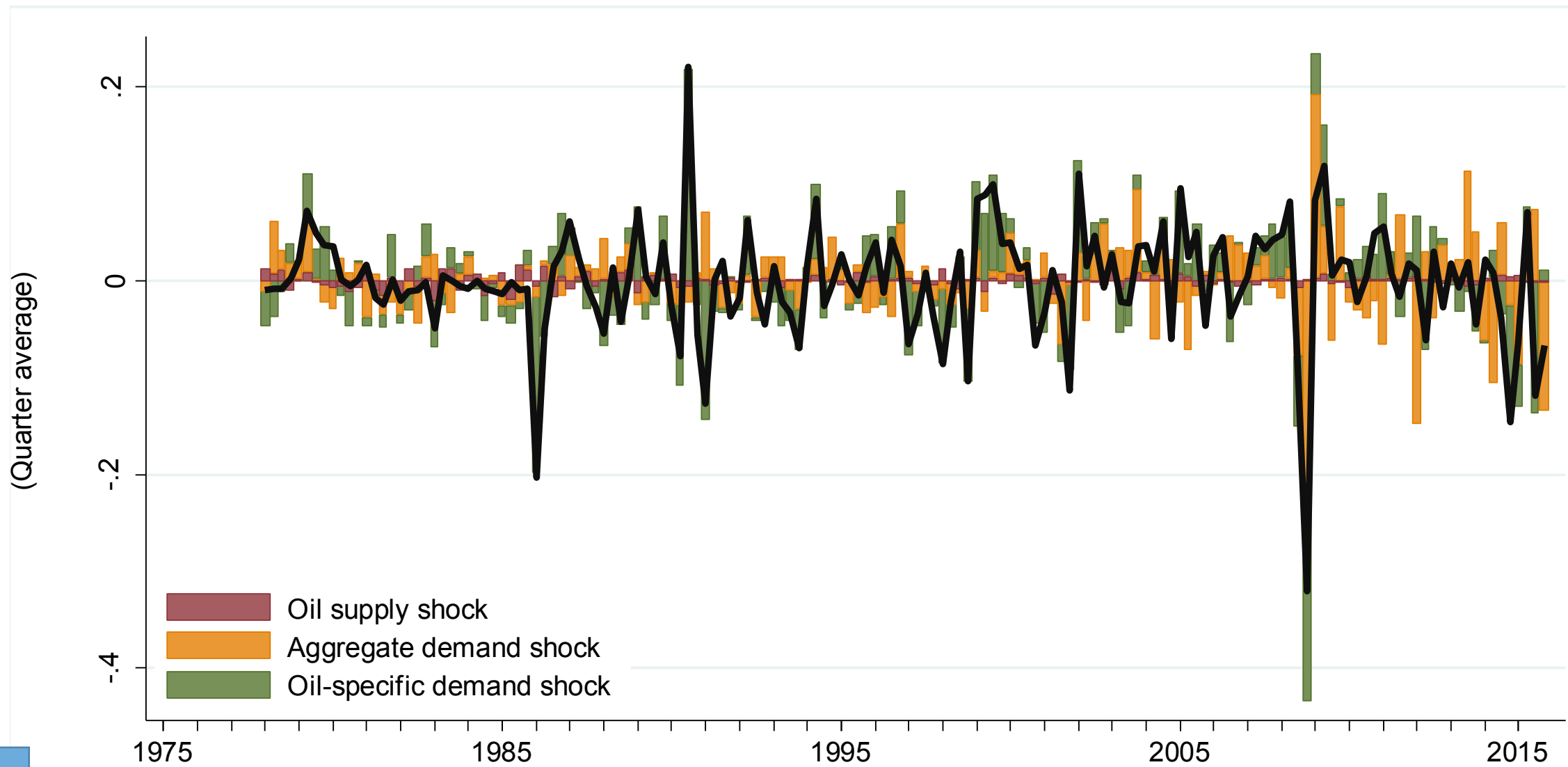
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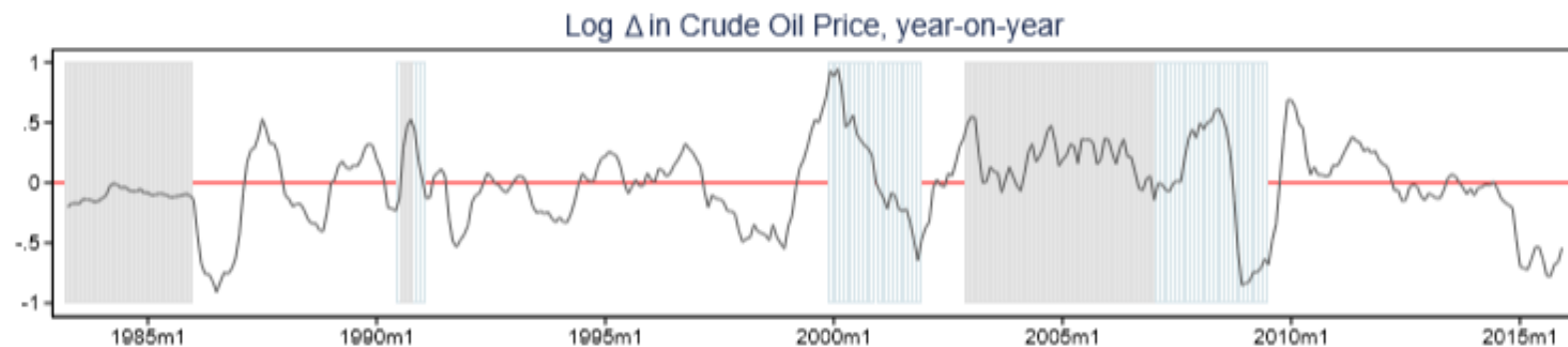
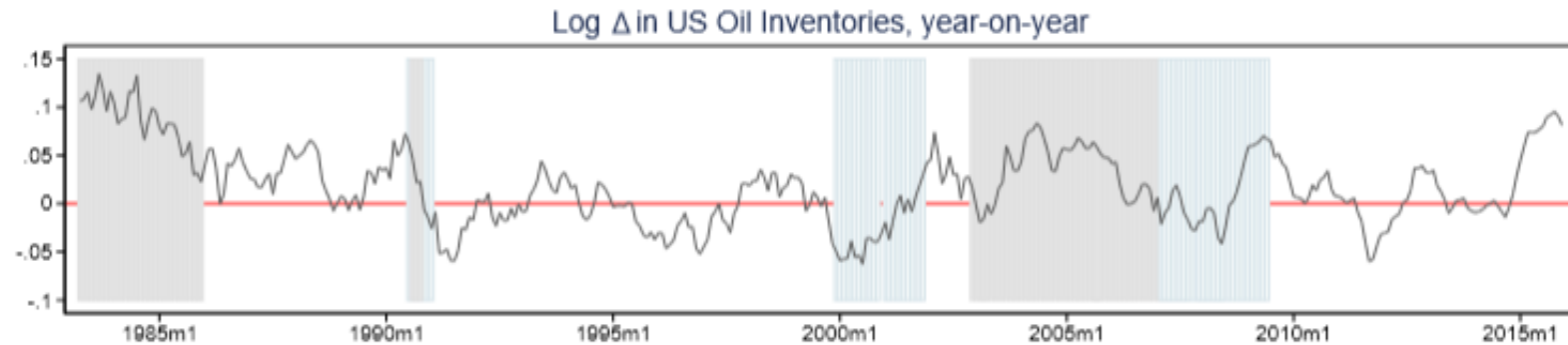
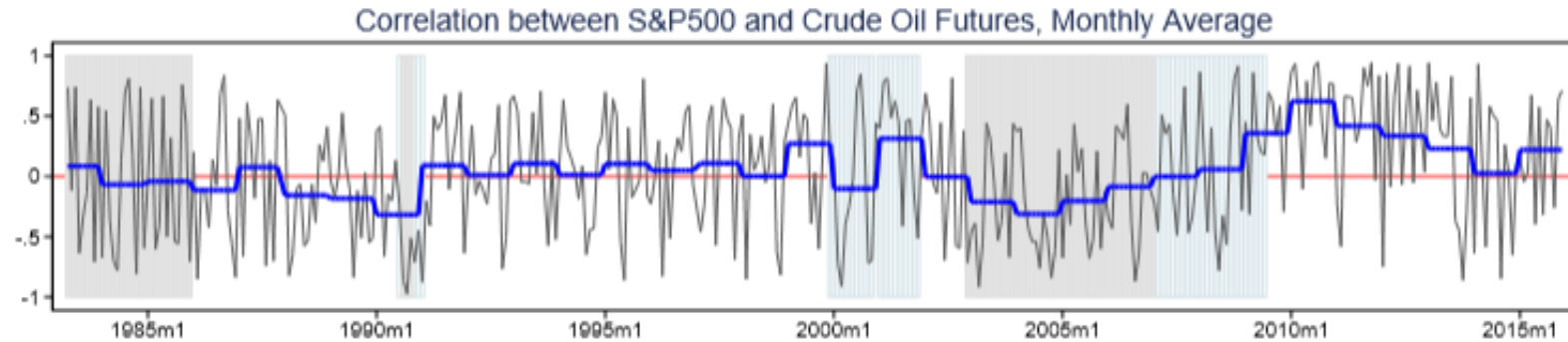
# Appendices

# Historical Decomposition of Oil Price Changes





# Correlation between Crude Oil Futures and S&P500



Source:  
*Brucal and Roberts, 2016*

# Effect of Oil Price Shocks on the Philippine's Investment Growth

