

# The Macroeconomics of the Arab States of the Gulf

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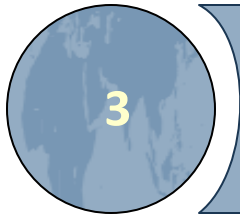
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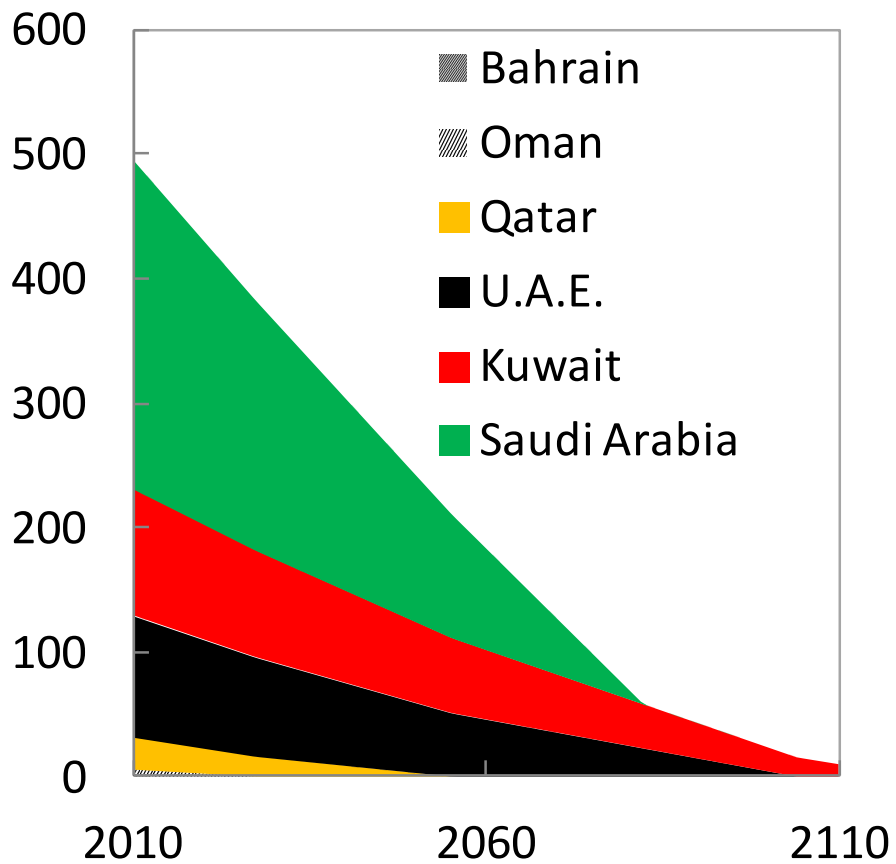
Research published as a book by Oxford University Press, 2013.



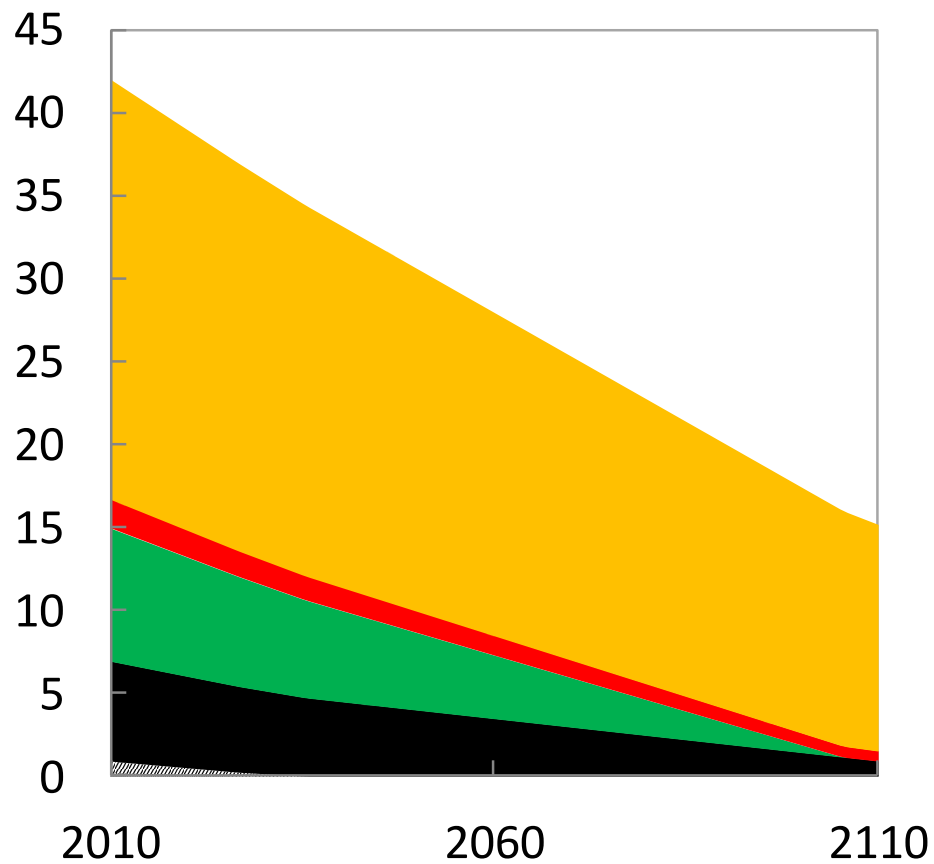


# Introduction

Oil Reserve, 2010–2110, bn barrels



Gas Reserve, 2010–2110, Tr of cubic meters



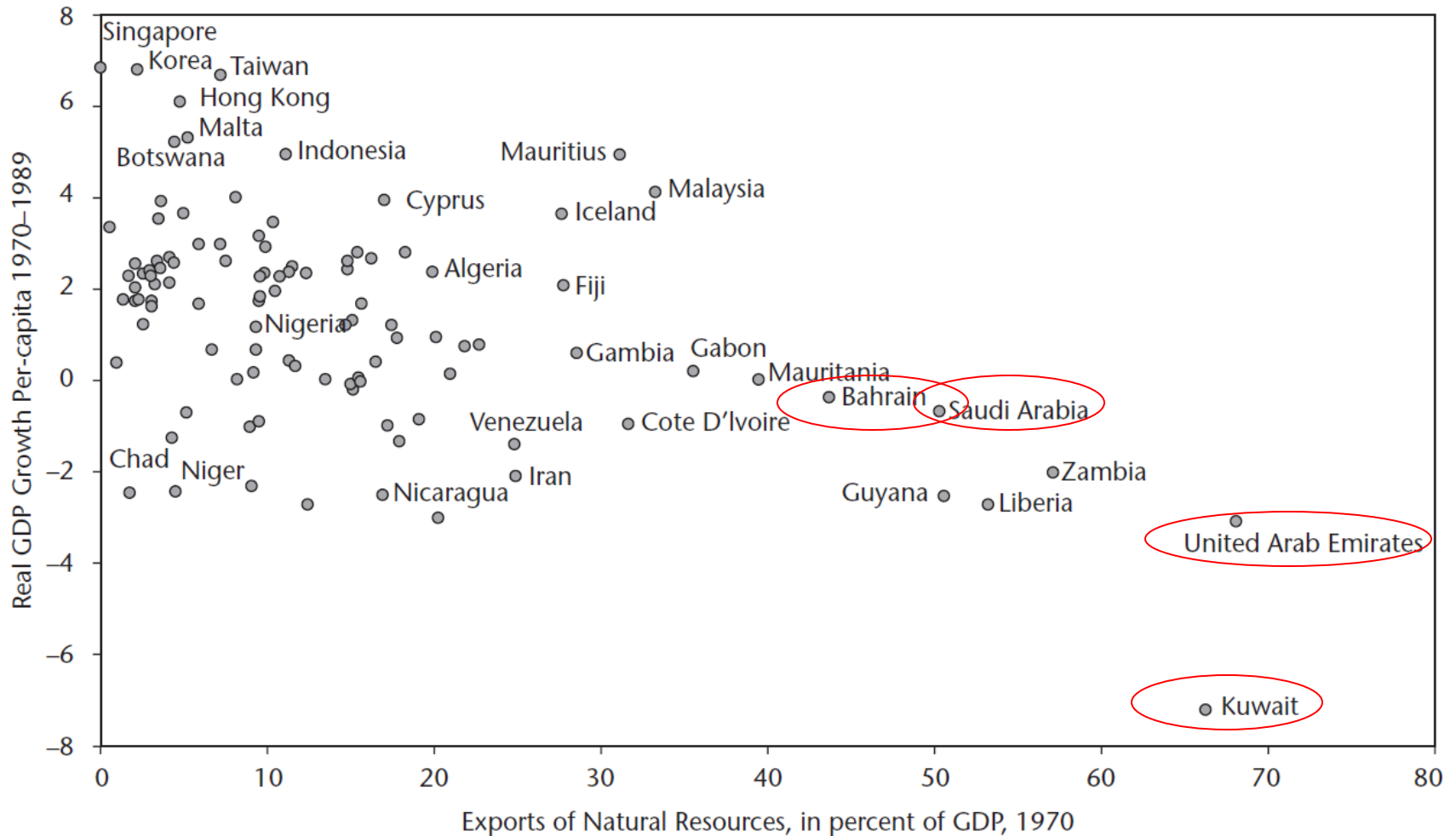


Figure 1.2. Sachs and Warner's (2001) natural resource curse

## **A. Long run growth**

Ch. 2 Determinants of long-run growth

Ch. 3 Did the region suffer from Dutch-Disease?

Ch. 4 How efficient is government spending?

## **B. Macro-stabilization policies**

Ch. 5 Stabilizing fiscal policy?

Ch. 6 Monetary policy with a fixed exchange rate

## **C. Financial sector**

Ch. 7 Determinants of risks in the banking system

Ch. 8 The performance of the financial sector during the crisis

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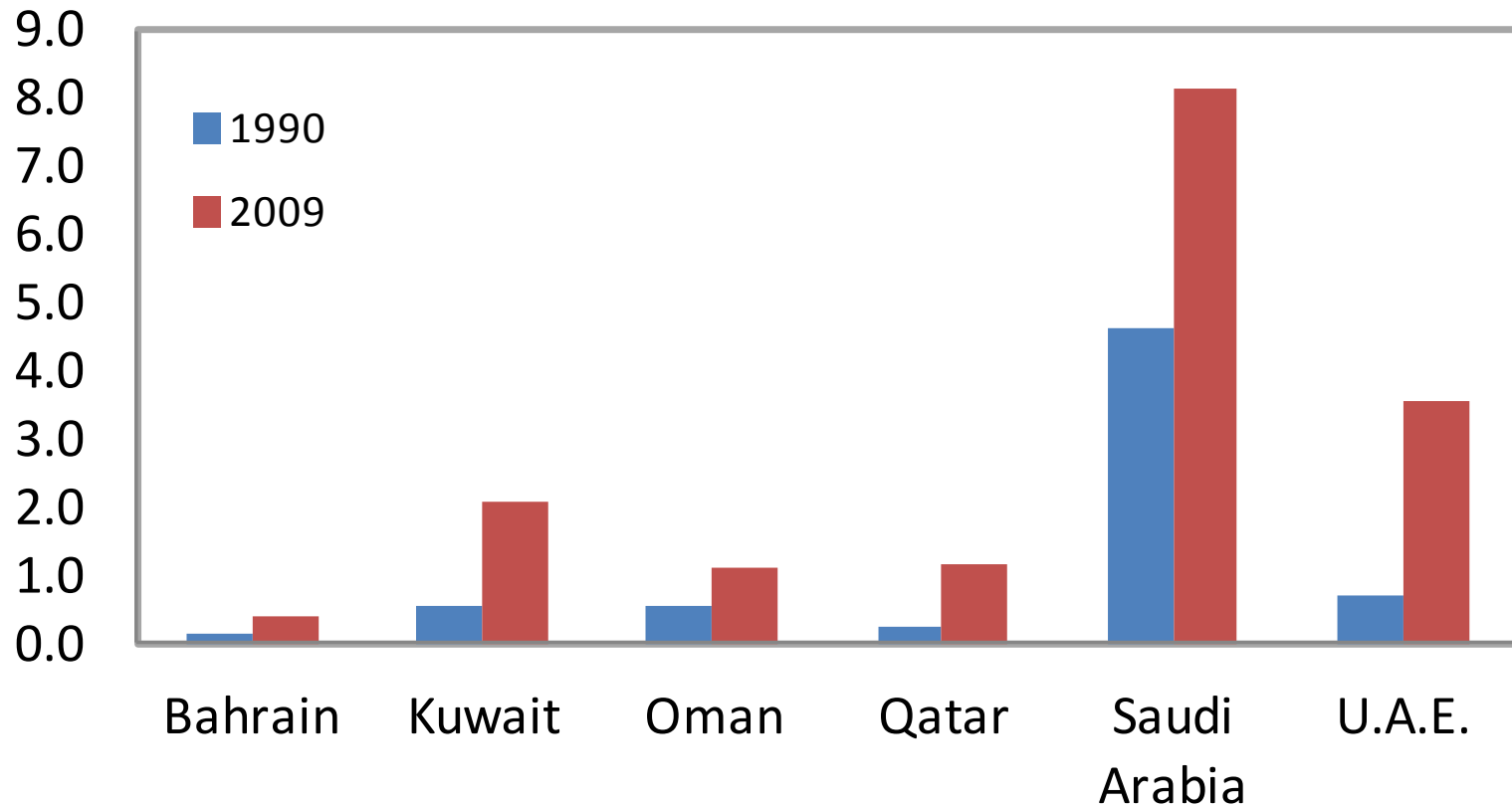
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## **C. Financial sector**

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## Employment, in millions of workers



Source: IMF

## Decomposing real GDP growth (1991-2009)

$\Delta y$  : growth of real GDP per worker

$\alpha\Delta k$  : contribution to growth due to increase in capital per worker

$(1-\alpha)\Delta h$  : contribution to growth due to increases education

$\Delta TFP$  : unexplained component (Total Factor Productivity)

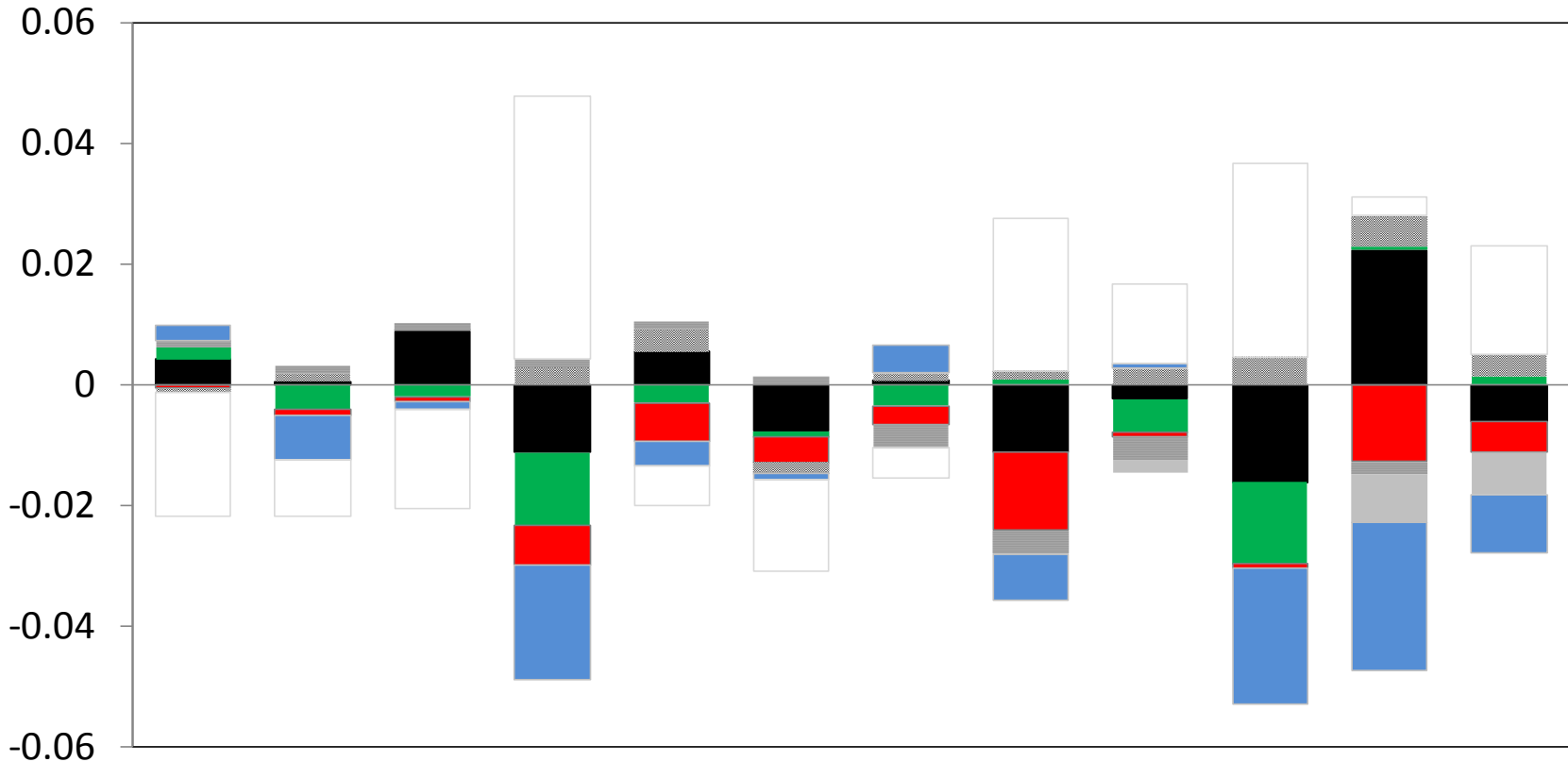
	$\Delta y$	$\alpha\Delta k$	$(1-\alpha)\Delta h$	$\Delta TFP$
Bahrain	-1.3	-1.0	0.9	-1.2
Kuwait	-3.0	-1.3	0.1	-1.9
Oman	0.5	0.7	0.8	-1.0
Qatar	1	0.5	0.7	-0.1
Saudi Arabia	-0.1	0.1	0.8	-1.0
UAE	-3.4	-1.4	1	-3.0



Some serious caveats:

- Data, especially price of investment goods
- What is capital?
  - Aggregation issues (Caselli, 2005)
  - Types of capital (Caselli and Wilson 2004)
- Is the weight given to years of schooling correct?
- TFP growth slightly better when focusing on non-oil GDP, but we don't have factors of production by oil/non-oil sectors

# Ch 2. Contributions to TFP



- Unexplained
- Inflation
- Terms of Trade
- Gvt. Consumption
- Volatility
- Trade openness
- Quality of institutions
- Initial GDP per capita (convergence)

Whether the region suffers from the resource curse or not, it is important to look into these possible factors in more detail:

- Dutch-Disease explanation of slower growth  
→ Chapter 3
- Rent-seeking/government efficiency issues  
→ Chapter 4
- Volatility and macroeconomic policies  
→ Chapters 5-7

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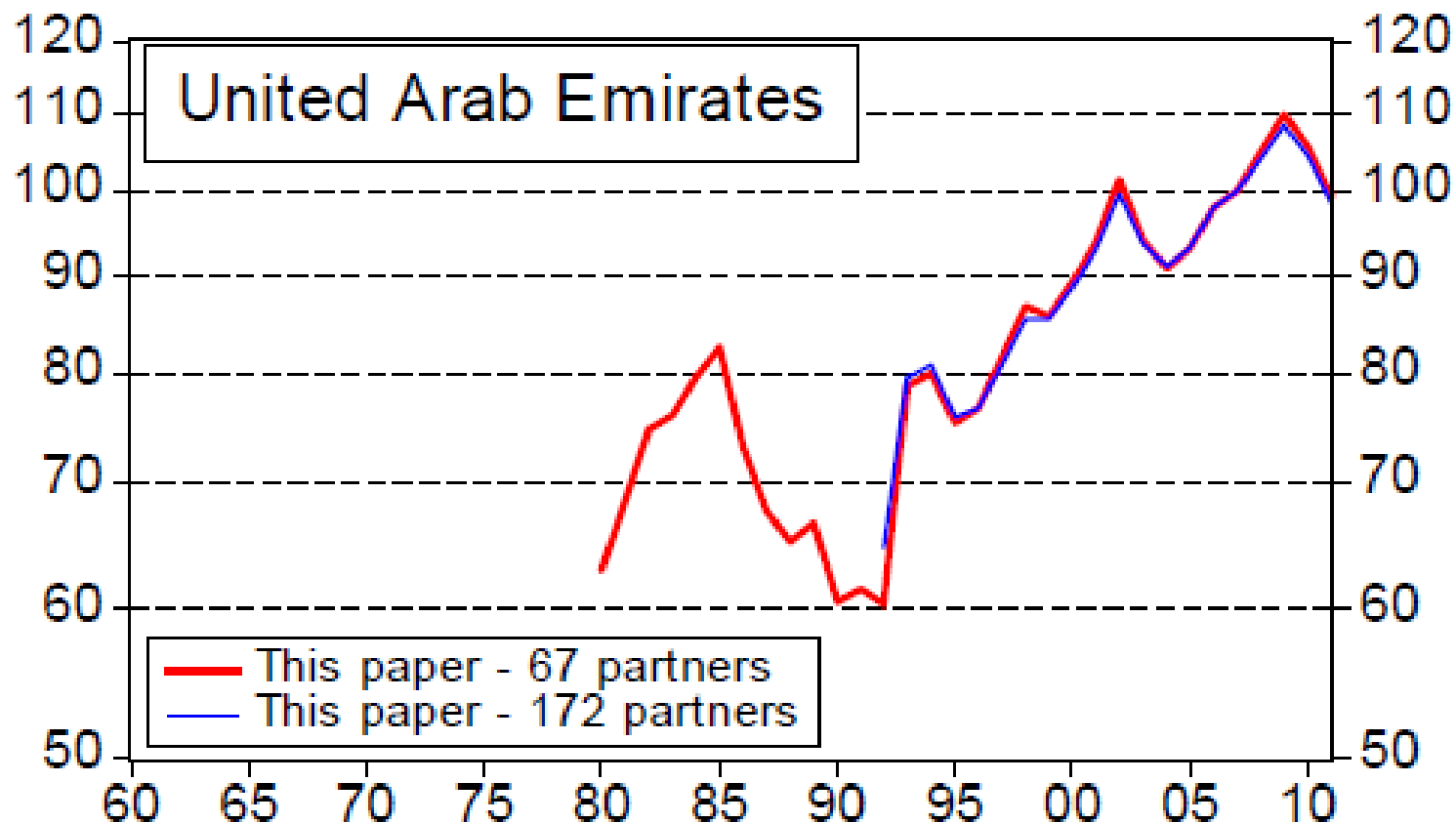
Ch. 4 How efficient is government spending?

## **B. Macro-stabilization policies**

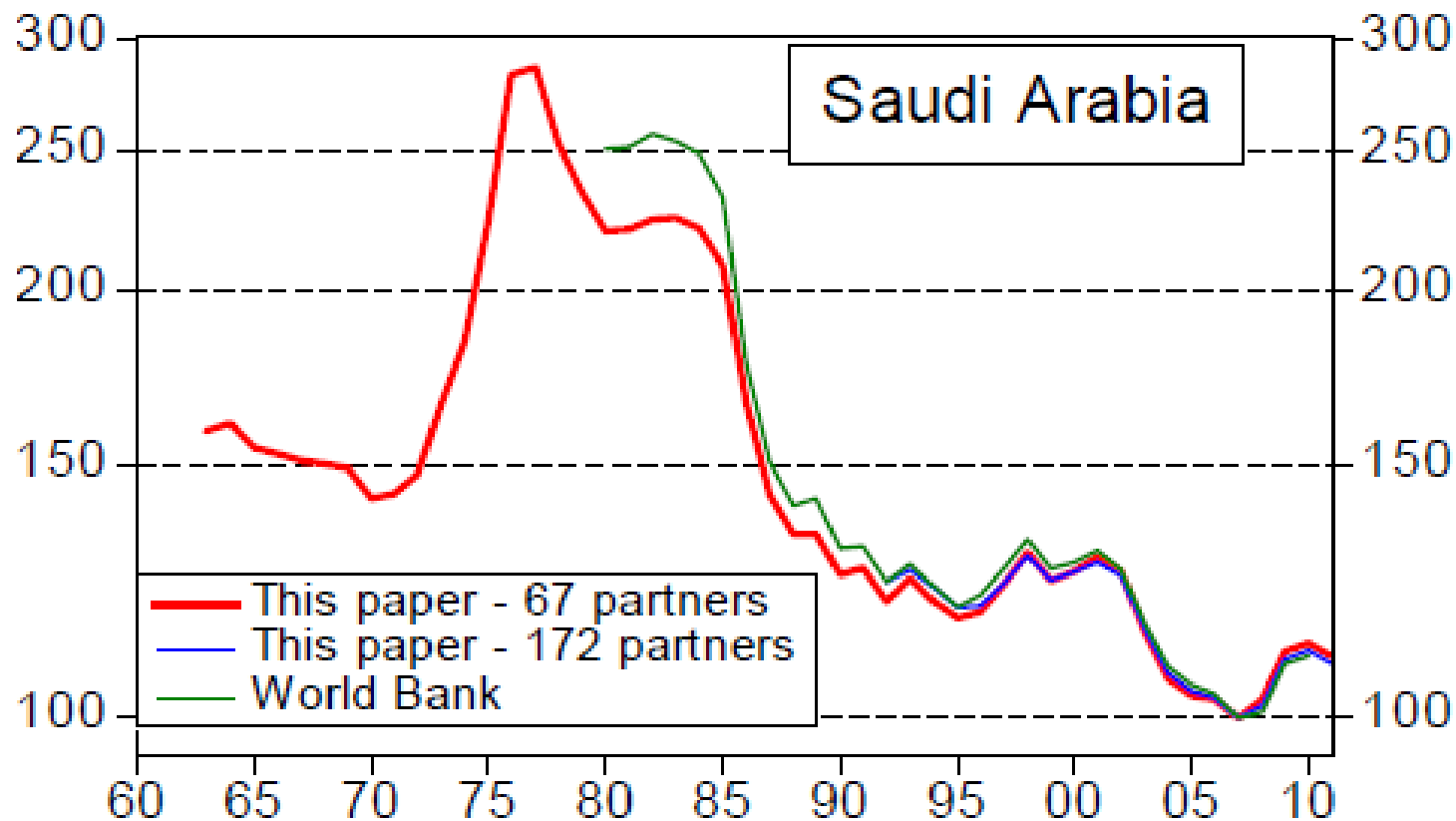
Ch. 5 Stabilizing fiscal policy?

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- Dutch Disease is one of the possible explanations of the Resource Curse (Sachs and Warner, 2001)
- Revenue windfalls increase demand for domestic goods and services, appreciate the Real Exchange Rate
- This reduces competitiveness and the production of non-oil exports (eg manufacturing)
- This is harmful either because primary commodities suffer from declining prices in the long run, or because manufacturing is the source of endogenous growth



Source: Darvas, 2012



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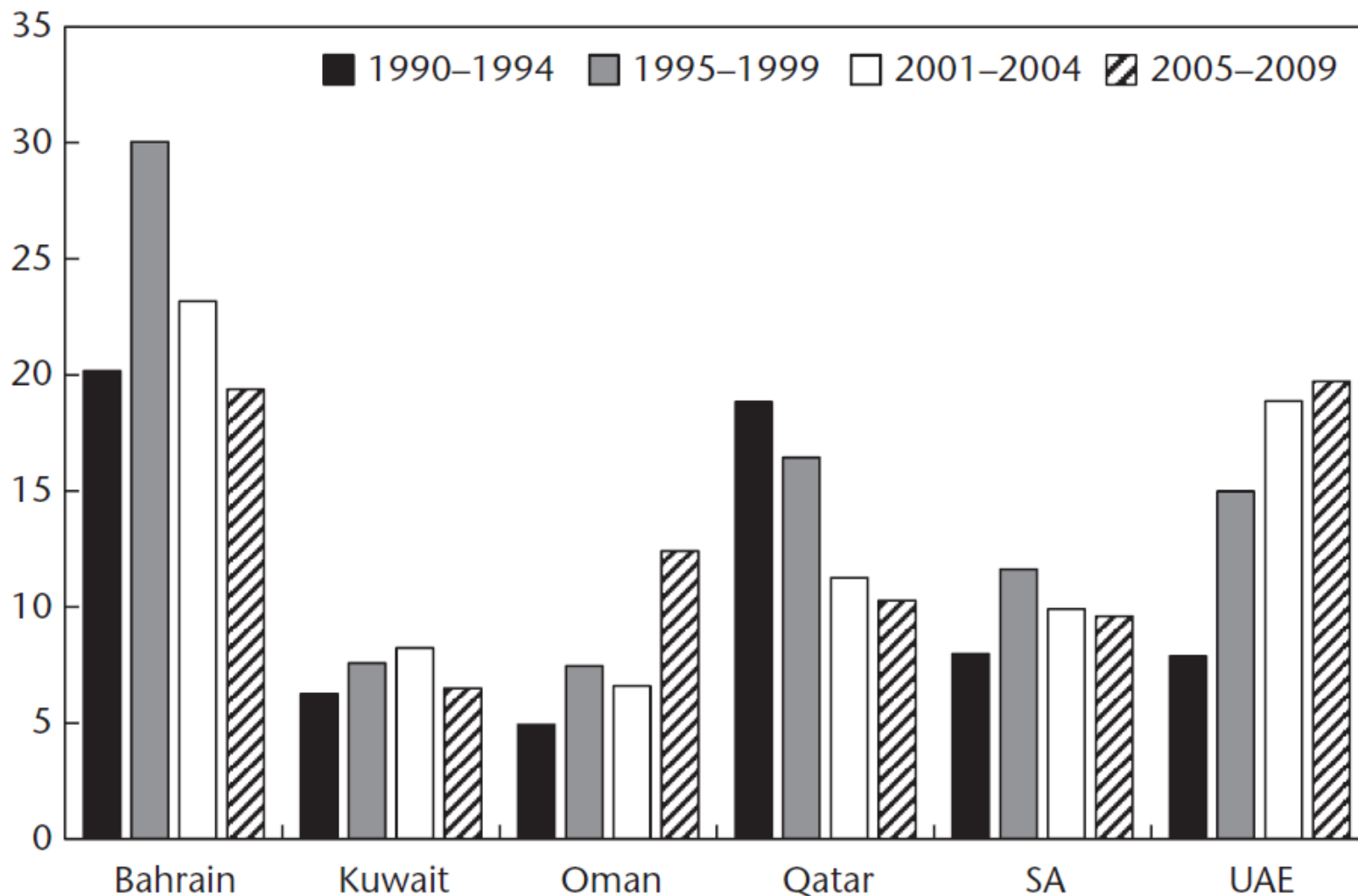


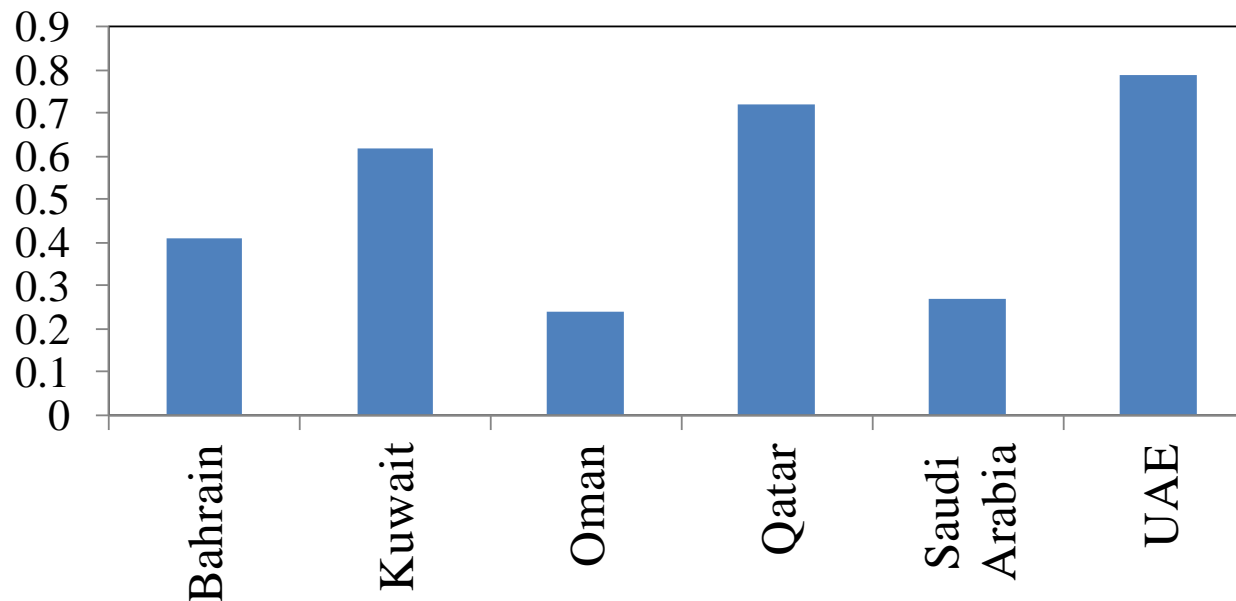
Figure 3.5. Share of non-oil exports in total exports (in percent)



Models of Dutch Disease can take into account other factors, eg the role of public investment (Adam and Bevan, 2006)

In this chapter we focus on the role of migration, a very important aspect of GCC labor markets

**Share of non-nationals in population**



## A model of Dutch-Disease with Migrants

Expenditure = income + oil rent

$$e(q, u) = g(q, L) + N \quad \text{where} \quad L = M(N) + I$$

RER  $\nearrow$  welfare  $\nwarrow$  labour supply  $\nwarrow$  migrants  $\nwarrow$  indigenous  $\swarrow$

Total differentiation leads to:

positive demand side effect

negative supply side effect

$$dq = \frac{1}{\Omega} \left[ \eta\lambda(1 + g_M M_N) - qM_N \varepsilon_{qM} \frac{g_q}{M} \right] dN$$

$\Omega > 0$

income elast. of demand for NT

migrant wage

share of NT in total exp.

migrant inflow

elast. of NT supply to migrants

migrant productivity

$$\Delta reer_{it} = \varphi(reer_{i,t-1} - \eta_i - \tau_t - \delta oil_{i,t} - \alpha rem_{i,t} - \gamma gov_{i,t} - \theta nfa_{i,t}) + \delta_0 \Delta oil_{i,t} + \alpha_0 \Delta rem_{i,t} + \gamma_0 \Delta gov_{i,t} + \theta_0 \Delta nfa_{i,t} + \varepsilon_{it}$$

**Table 3.4.** Effect of remittance outflows on the REER, 1980–2009

Dependent variable: REER	Pooled ECM	Pooled Mean Group	
	(1)	(2)	(3)
Long-run coefficients			
Oil export revenues		-0.049	-0.017
Remittance outflows	-0.254*	-0.274***	-0.133***
Error correction coefficient	-0.110***	-0.133*	-0.311**
Countries	11	8	8
Country fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	CSD	CSA

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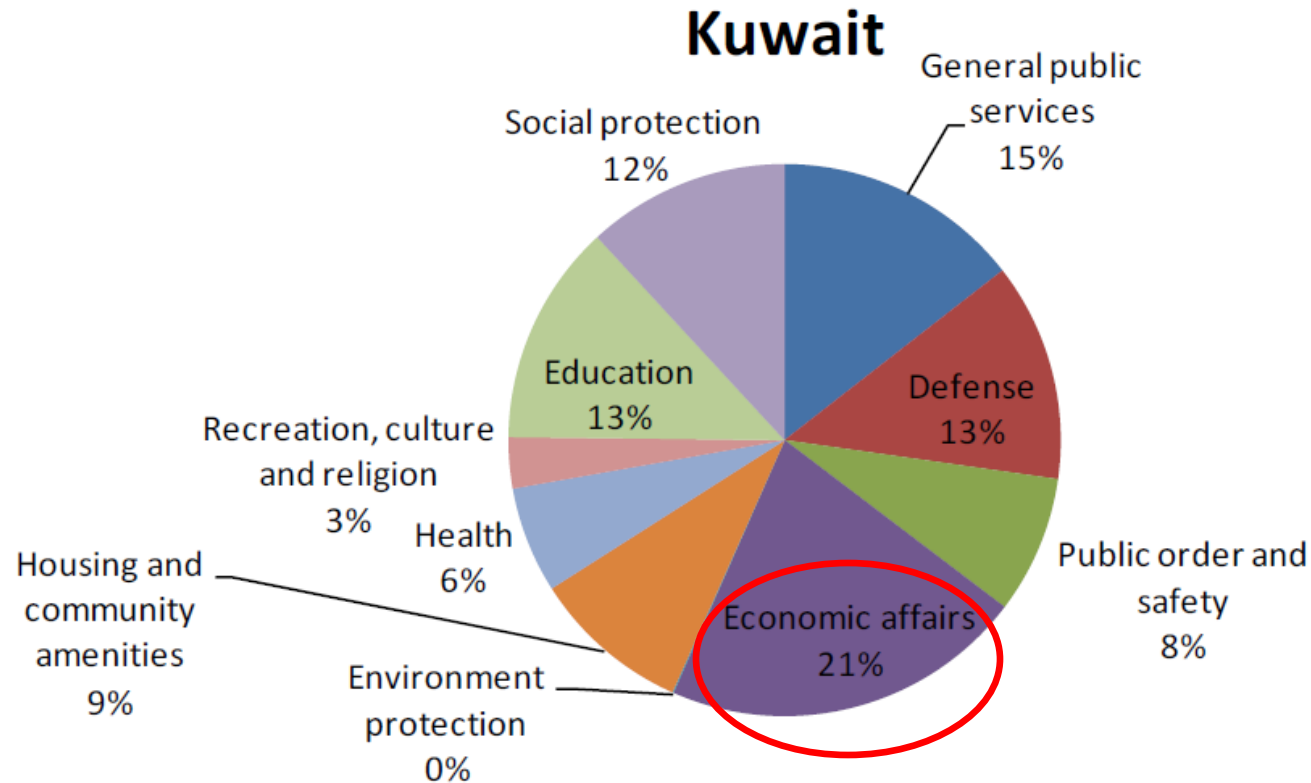
**Ch. 4 How efficient is government spending?**

## **B. Macro-stabilization policies**

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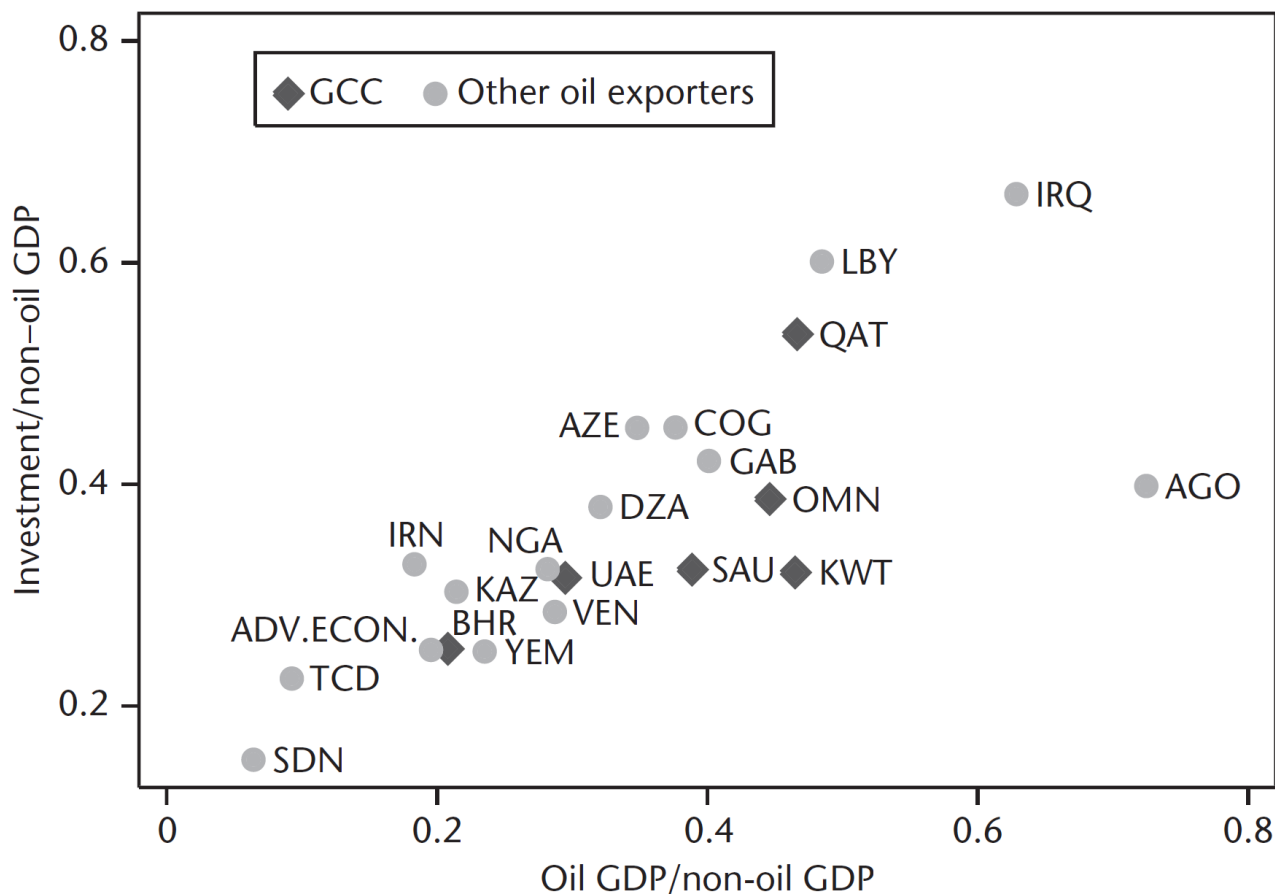
## Budget, by outlays



Spending on energy, electricity, food and water subsidies (2010):  
US\$ 16bn (12 percent of GDP, and 32 percent of government spending)

## Ch 4. How efficient is government spending?

Countries spend on public investment because they can.  
Literature is skeptical on effect of public investment: Devarajan et al. (1996), Easterly (1999), Romp and De Haan (2005)



# Ch 4. How efficient is government spending?

Countries spend on energy subsidies because they can, most likely not because they need to

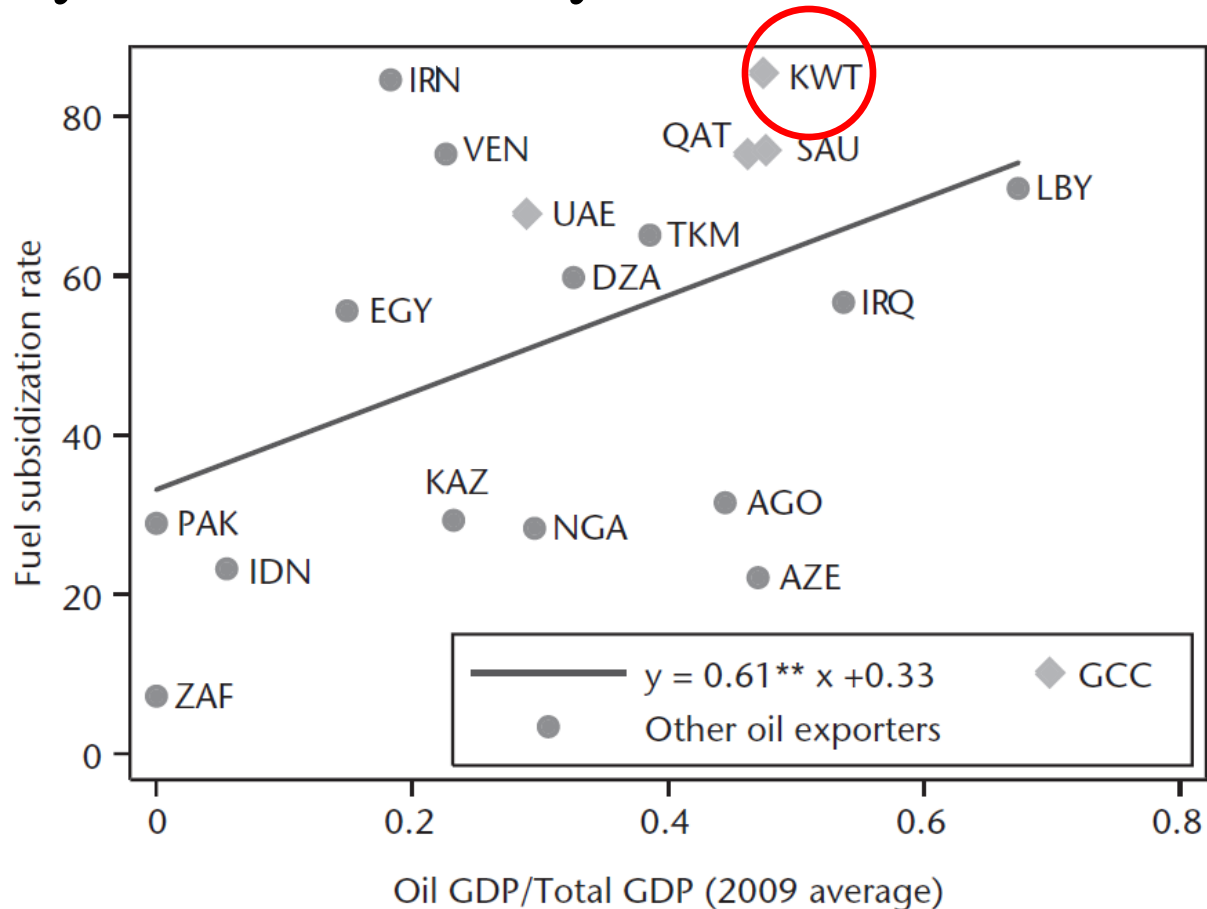
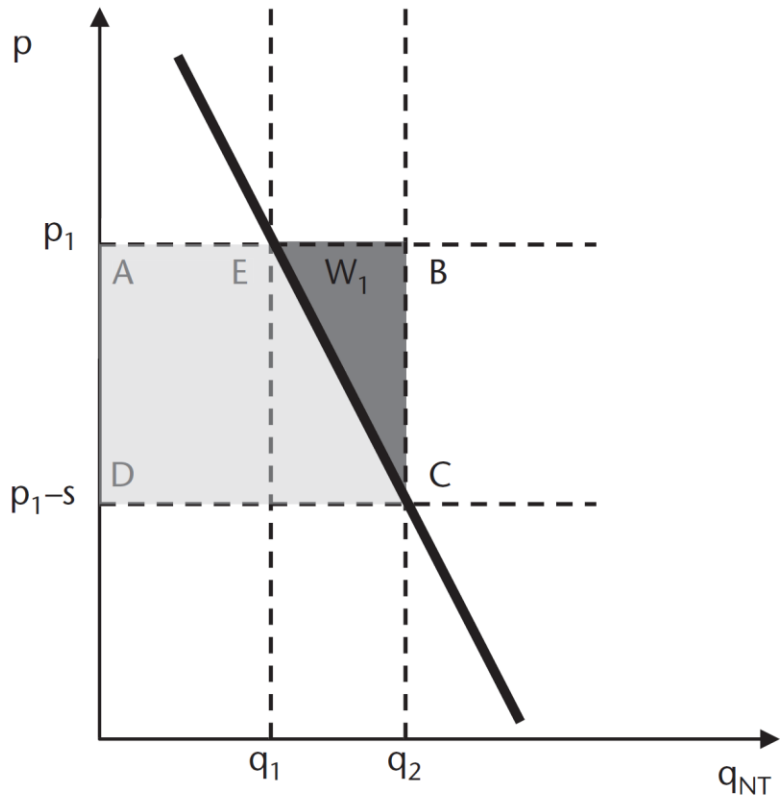


Figure 4.4. Subsidies and size of the oil sector

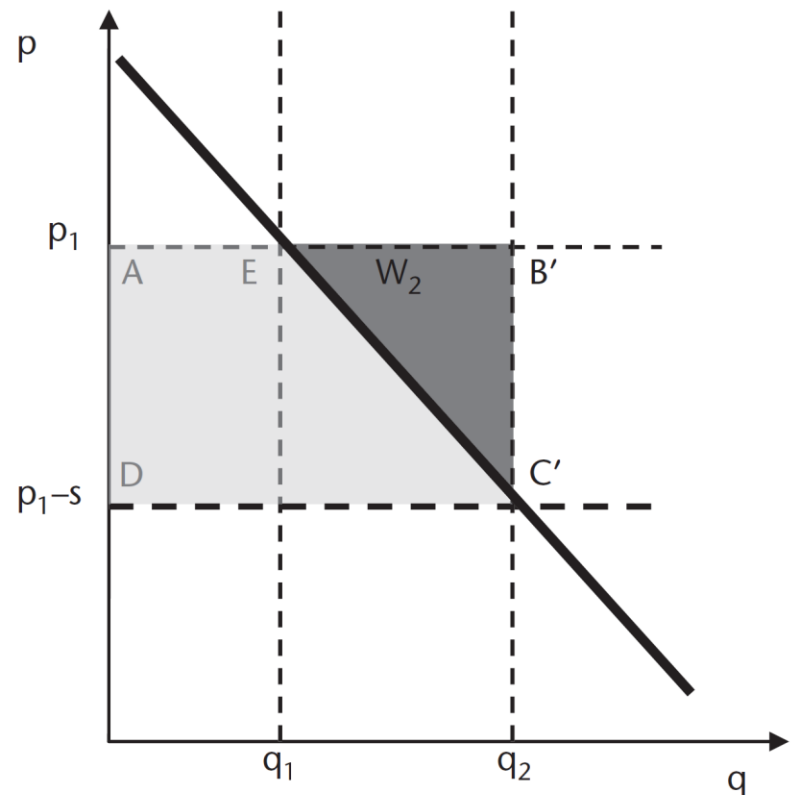


Ramsey's theory of optimal taxation can be applied to 'optimal subsidies'

**Inelastic commodity**



**Elastic commodity**



- Goods with a low demand price-elasticity (food, health services) should be subsidized at higher rates
- Subsidizing energy is inefficient even in this static framework without pollution (demand elasticity to price is high, at around -1)
- As GCC countries embark in plans to de-subsidize their economy (e.g. pricing to market for feedstock to Industries Qatar), they should consider lowering a wide range of subsidies

Public spending creates inefficiencies in dynamic models

- Real Estate Development Fund (REDF) has been extending interest-free loans to Saudi citizens
  - affected the demand for loans issued by private banks
  - generated long ‘queues’ due to demand in excess of funds supplied by the government
- Public service jobs are better paid than private sector equivalent jobs
  - Excess demand in Egypt, Saudi Arabia etc.
  - Unemployment of Saudis is around 10 percent, and is underestimated (low LF participation)

We can write a model of ‘queue’ for public service jobs. Quite similar to models of rural-urban migration of Gelb et al (1991).

We find that  $dL_p/dL_g < -1$  if and only if

$$w_g > (1+s) w_p \left( (1-\theta) (L - L_p)/L_p + 1 \right)$$

An increase in public employment reduces the incentive to accept a private sector job

The effect on total employment can be negative if public service wages are 50 percent higher than private sector wages

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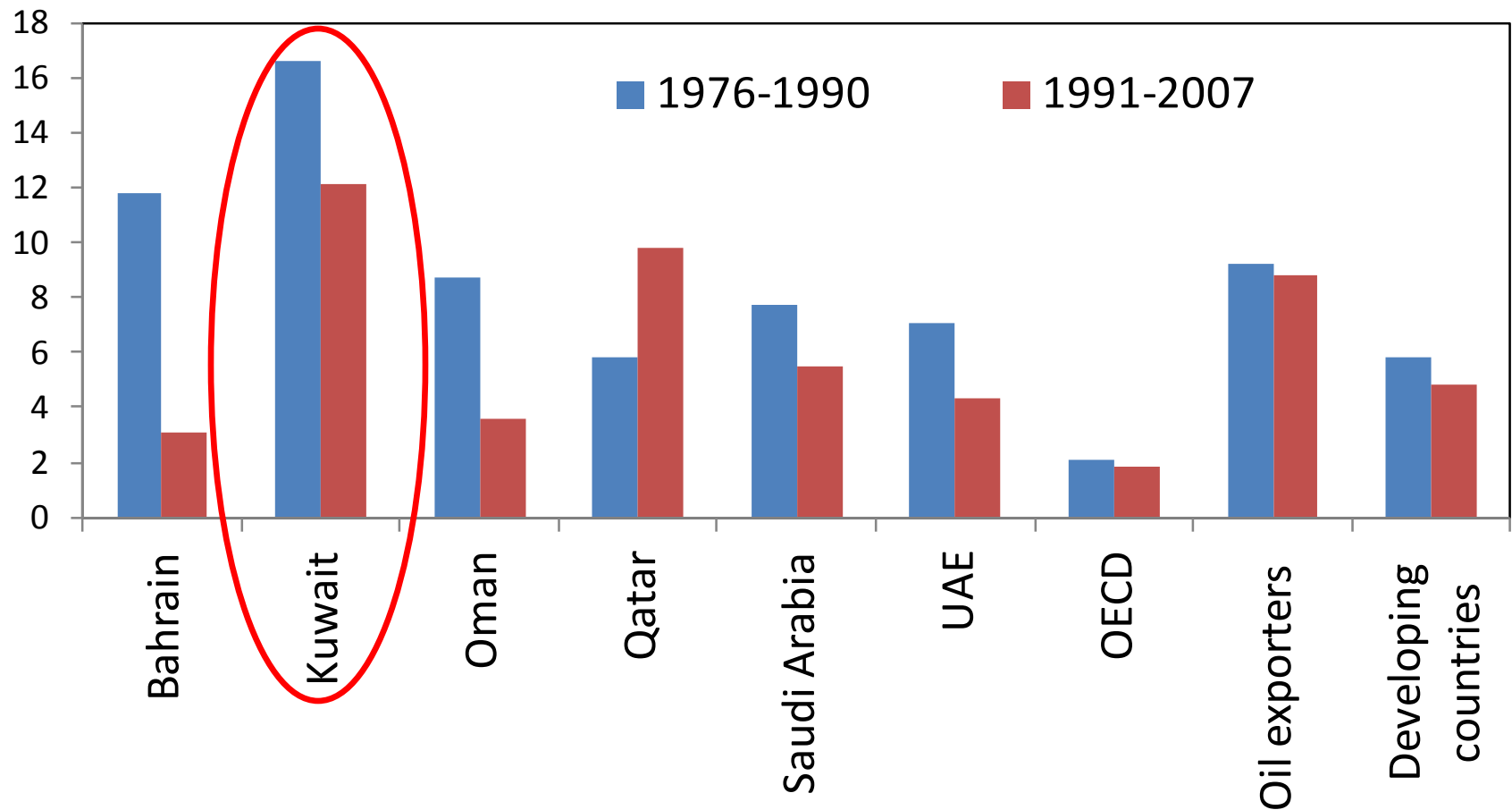
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## GDP volatility



Very important to assess role of short-term fiscal policy in oil-rich countries

- Can be the key stabilizing or destabilizing element (→ resource curse)
- In most emerging markets and resource-rich countries, fiscal policy is pro-cyclical (Ilzetzki and Végh, 2008)
- Many oil exporters fix the exchange rate  
→ little independence of monetary policy

Theoretical priors on effect of fiscal policy:

- With an exogenous interest rate, in a closed economy, multipliers are high
- But in an open economy, with large imports and remittances outflows, the Keynesian multiplier could be low

The empirical literature is concerned with endogeneity (automatic stabilizers, reactive fiscal policy)

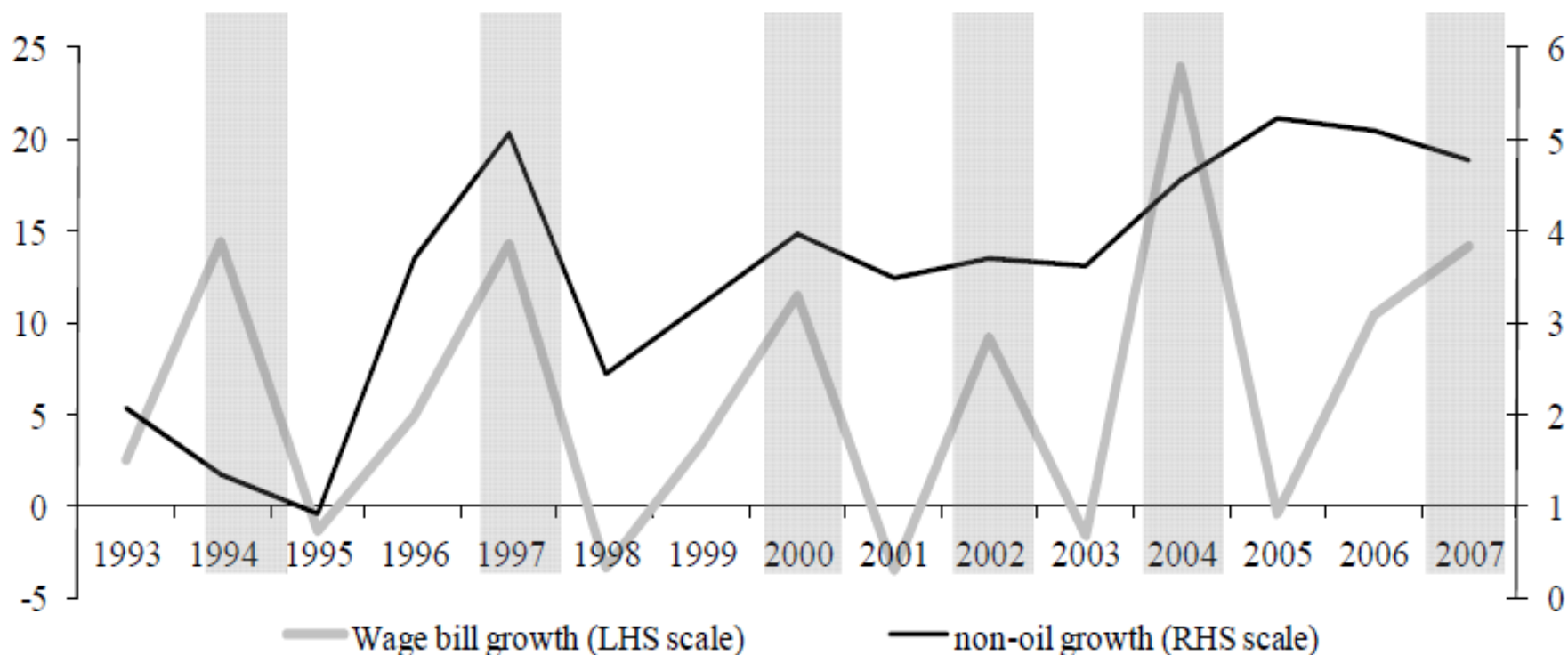


**Solution 1.****Identify exogenous increases in spending**

- a) In Saudi Arabia, the lunar Hijri calendar is used to pay public servants, who earn a 13<sup>th</sup> (Gregorian) month salary once every 2-3 years
- b) This can be used as an instrument for government spending: only public servants receive the 13<sup>th</sup> month salary
- c) But degrees of freedom are really small, since the adjustment dates from 1991 (and IV is biased)
- d) The increases are anticipated

Estimated multiplier for Saudi Arabia: 0.4

Figure 6. Wage Bill and Non-Oil Real GDP Growth  
(13<sup>th</sup> month salary years in shaded areas)



## **Solution 2.**

### **VAR using annual data**

- a) Fiscal policy is not very reactive in the GCC
- b) Little high frequency data to inform policymakers
- c) Standard VAR identification procedures can be justified
- d) VARs allow historical decomposition of GDP

## VAR of non-oil growth, government spending and world growth

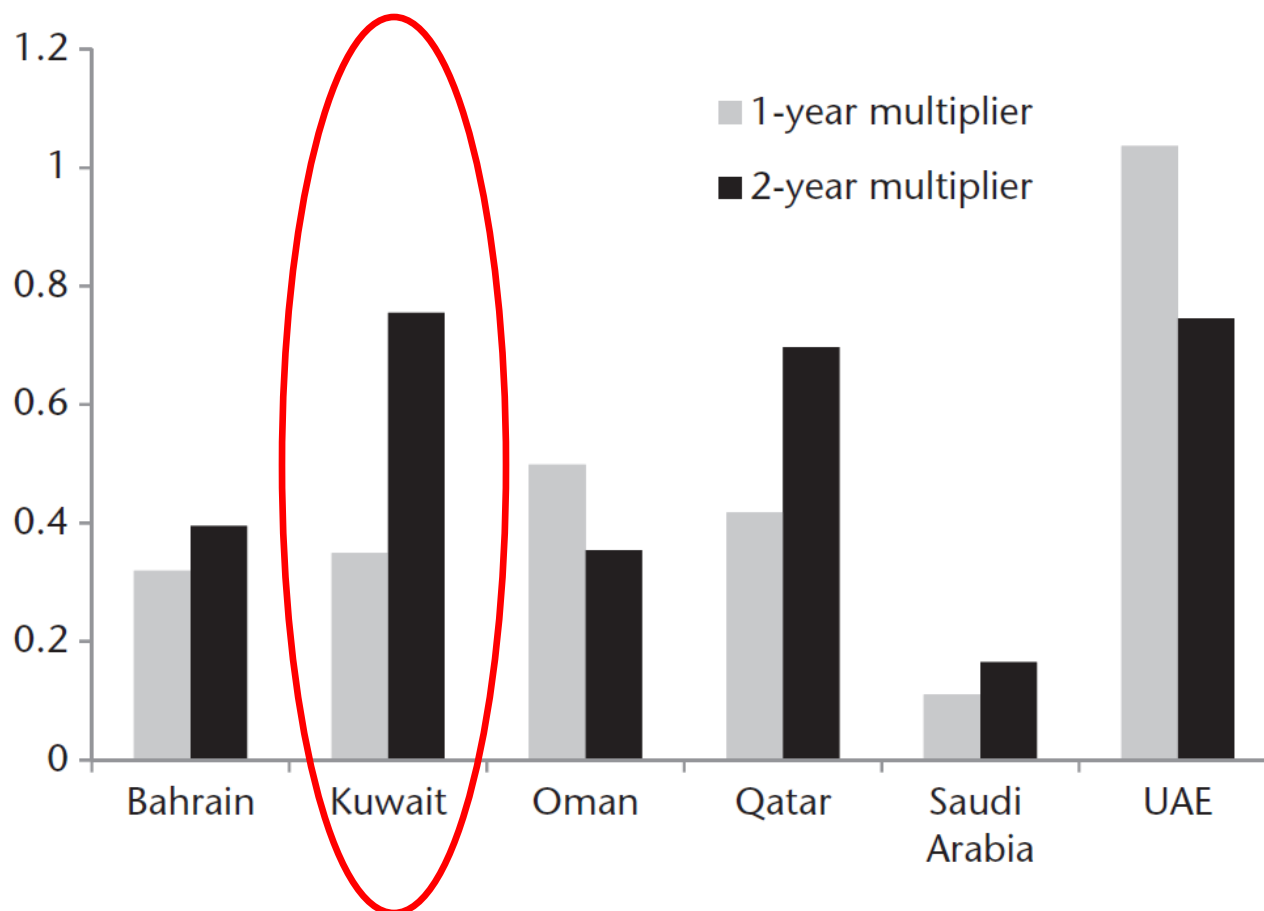
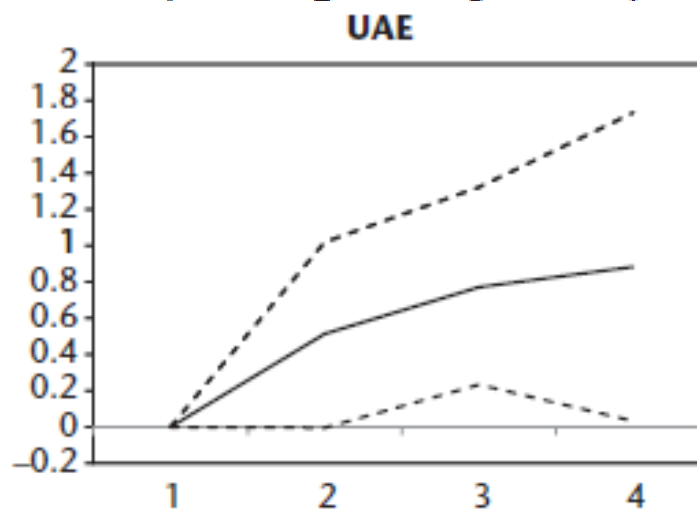
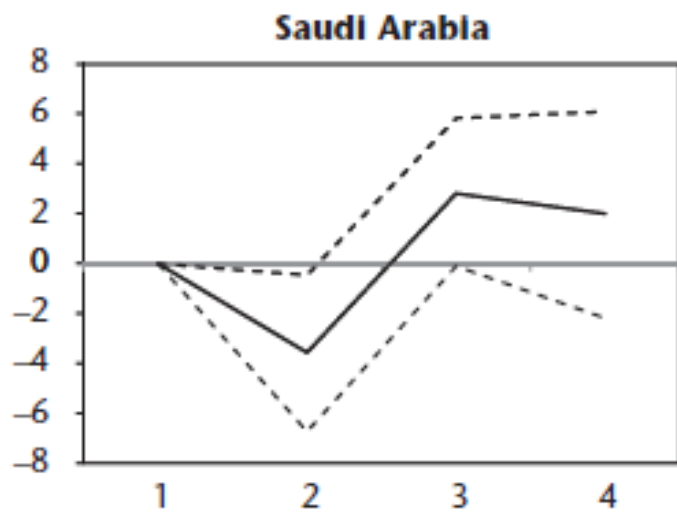
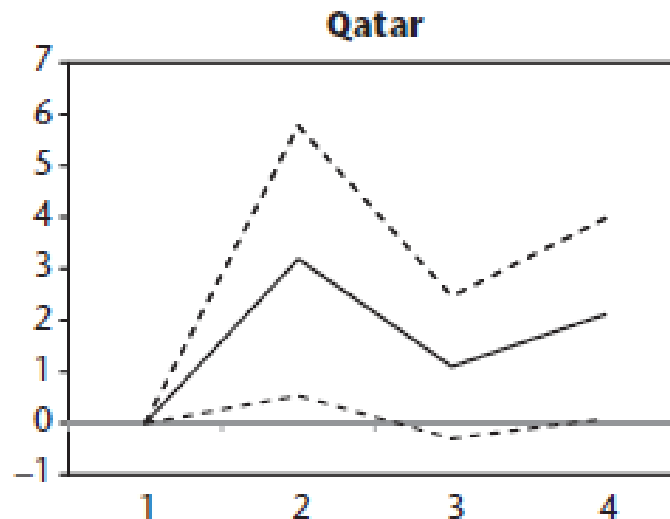
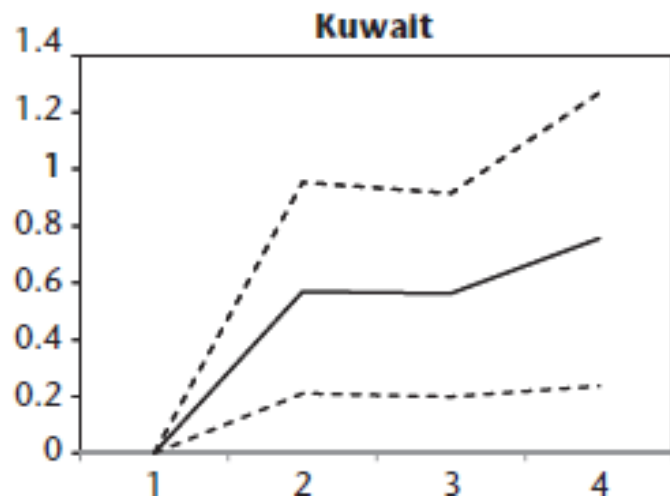
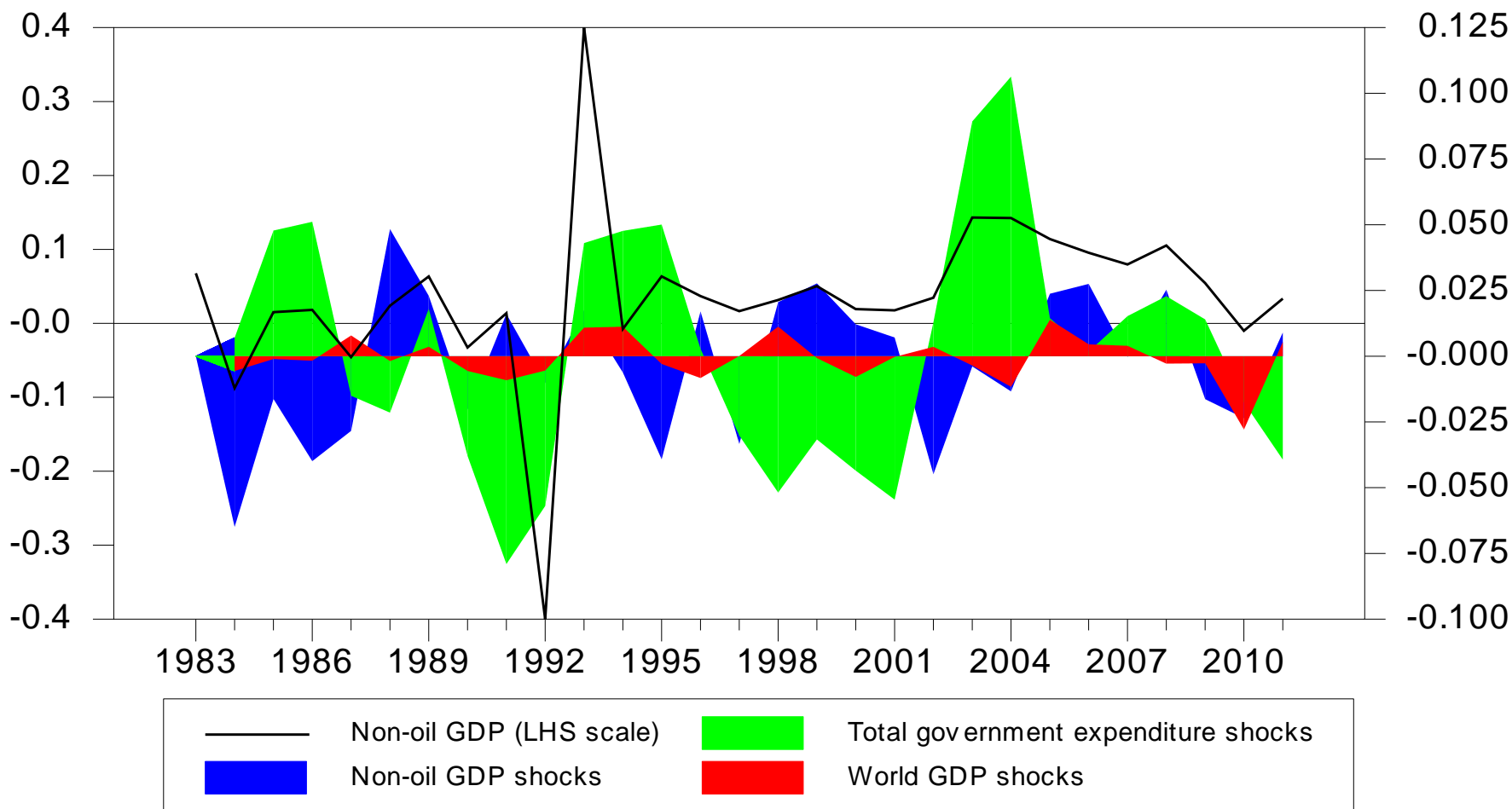


Figure 5.2. Fiscal multiplier (impact of total government spending on non-oil GDP)

## Response of fiscal policy to GDP shocks



## Factors of growth volatility in Kuwait



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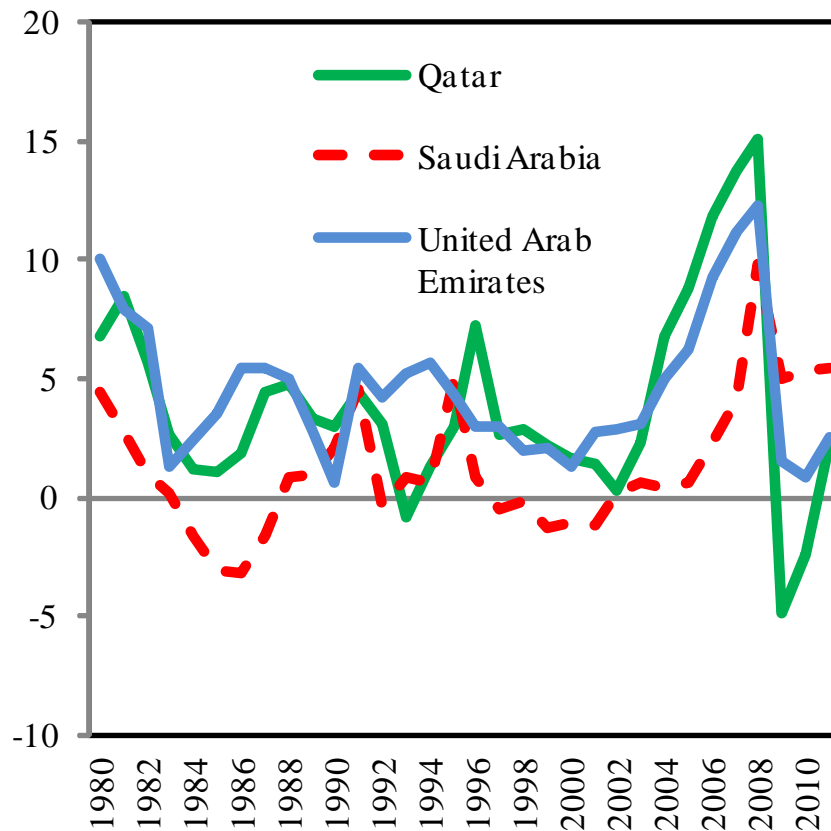
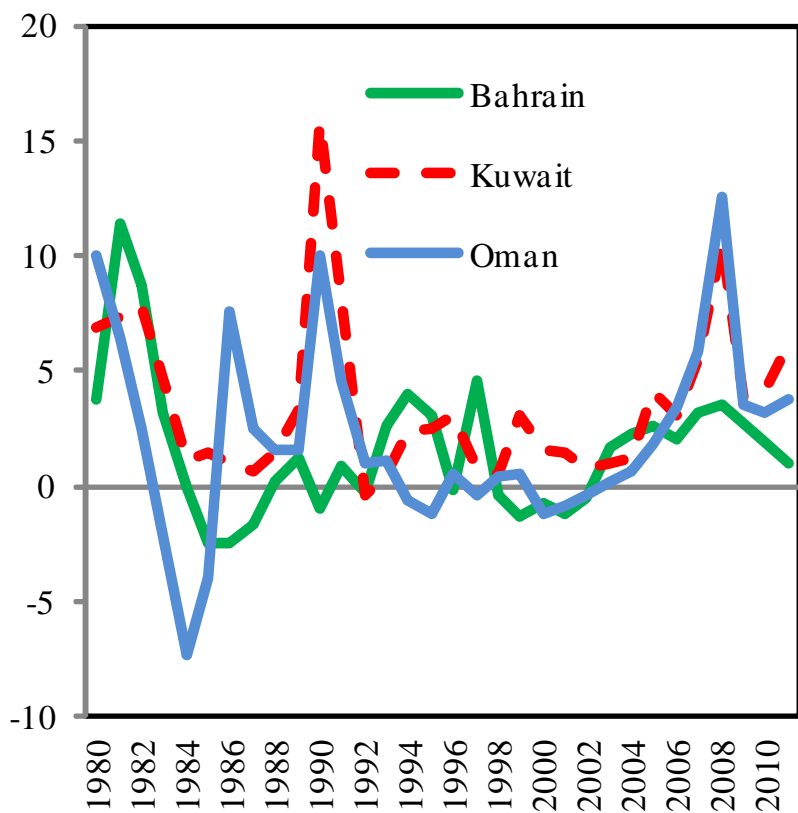
**Ch. 6 Monetary policy with a fixed exchange rate**

Several characteristics of the GCC make them interesting cases to study monetary policy, and many emerging countries/low income countries are similar:

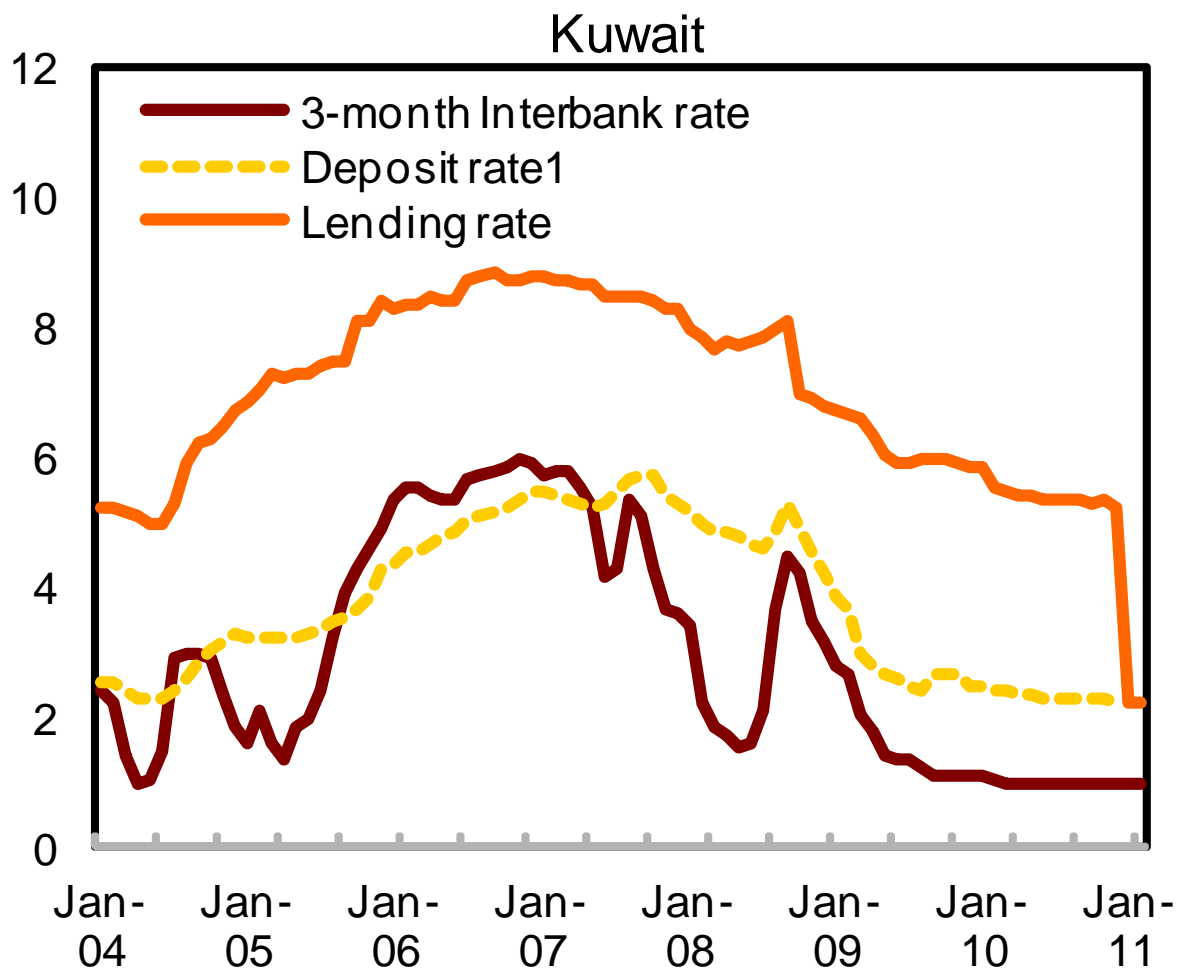
1. Most of the GCC is with a fixed exchange rate regime
2. Central Banks do not target an inflation rate
3. Central Banks operate on ‘quantities’ on money markets
  - a. Sterilization
  - b. Attempts at affecting interest rates and supply of credit, even with a fixed exchange rate regime



The fixed exchange rate regime has not been successful in stabilizing inflation

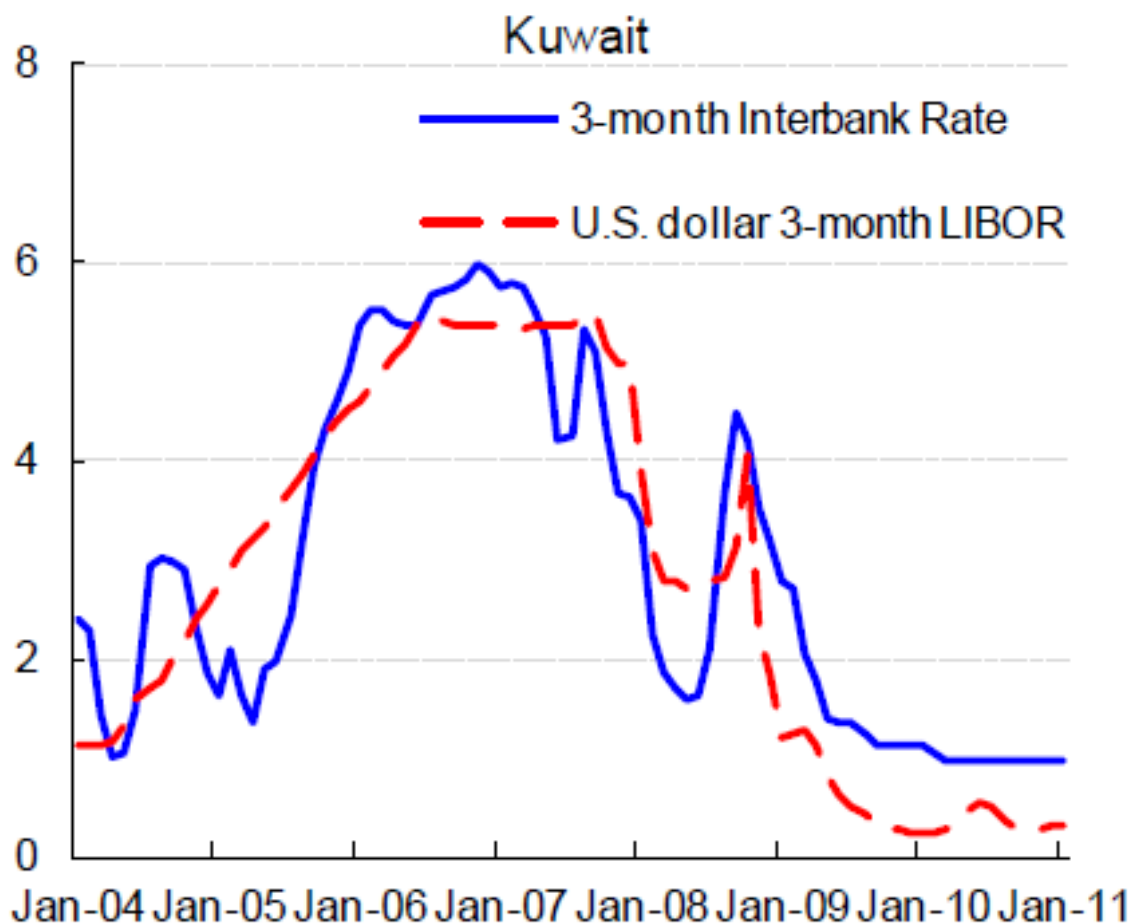


But independent monetary policy may not be very effective

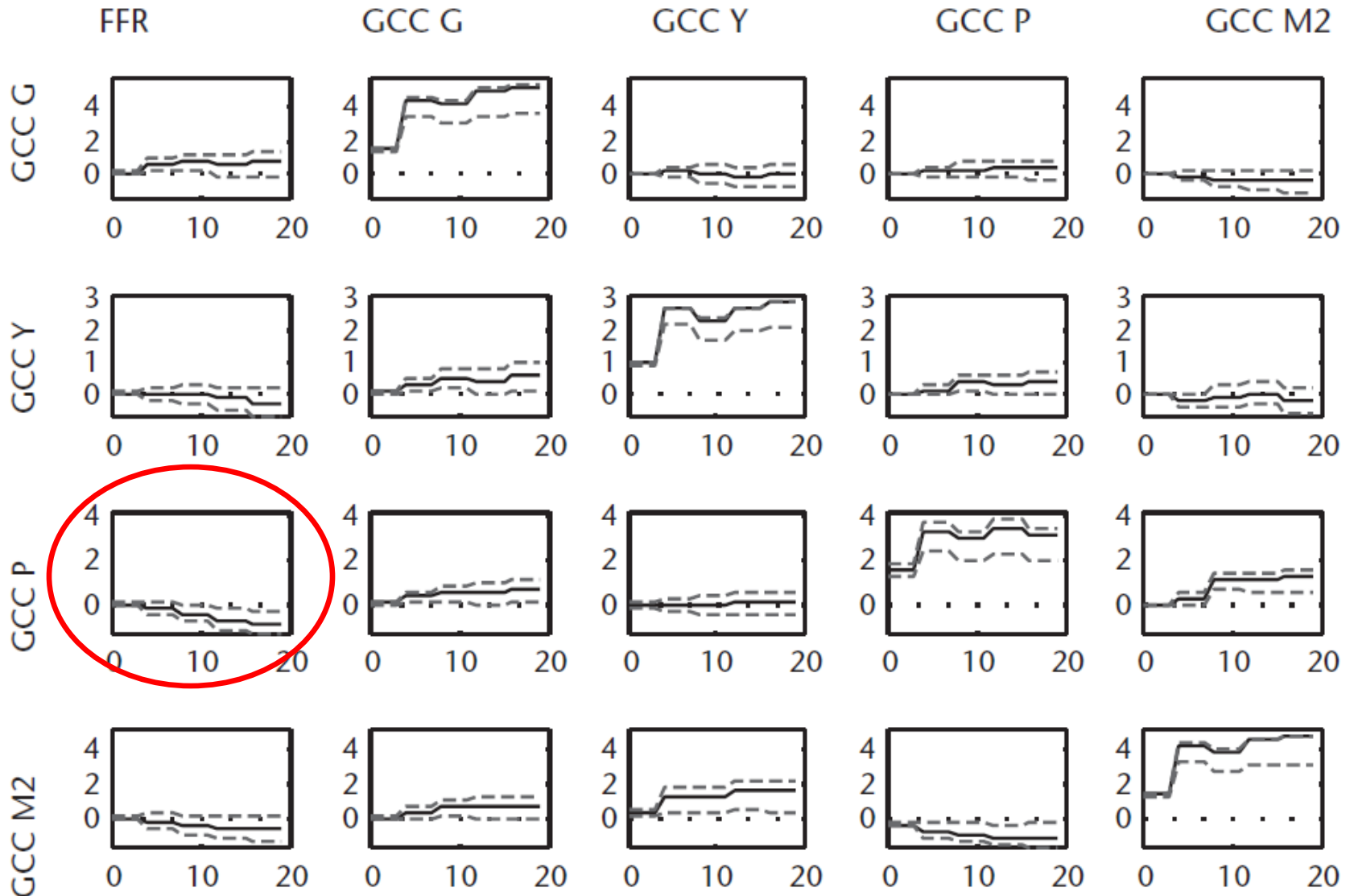


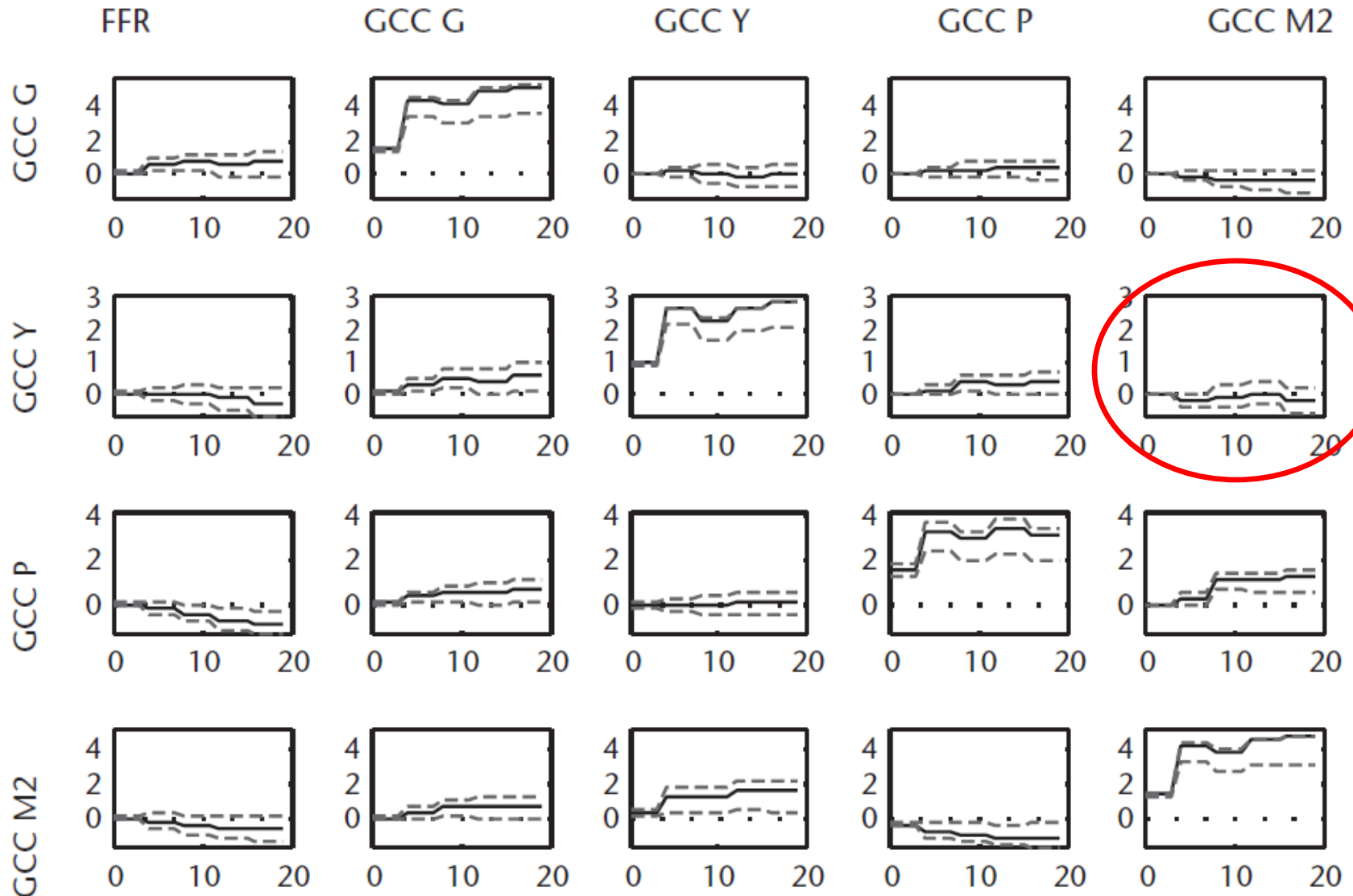
<sup>1</sup>Weighted average.

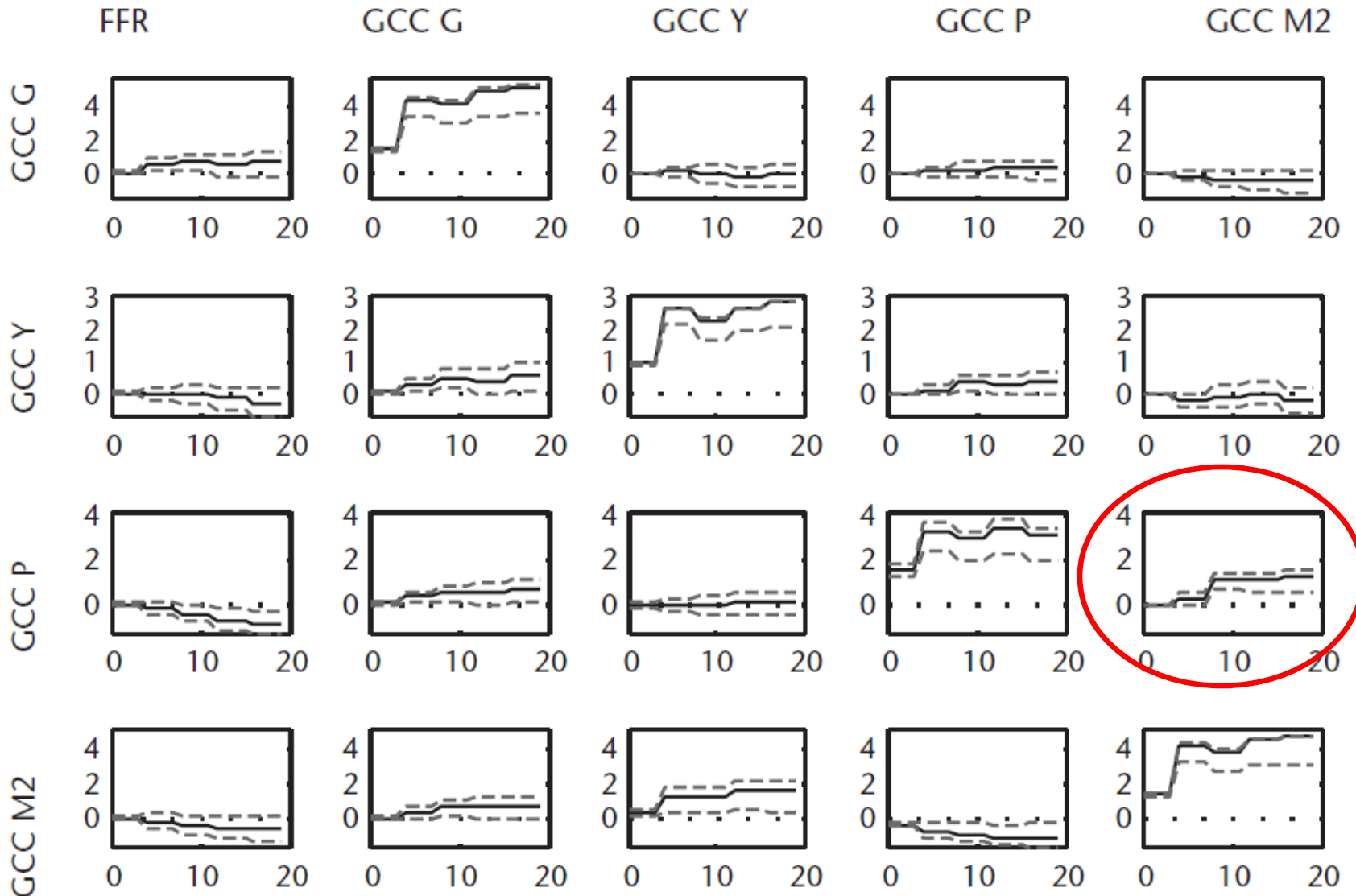
And central banks manage to temporarily affect interest rates



- Evaluating the stance of monetary policy and its effect in the GCC is very tricky
- Data is not available at high frequency, which is important for the VAR identification strategy
- We nonetheless estimate a monetary VAR. This is the first attempt on the region, but it is a speculative exercise
- With a fixed exchange rate we need to estimate US monetary policy shocks within the VAR
- 2-country VAR, following Miniane and Rogers
- Panel data with 168 observations







## Findings:

- Monetary policy in the US affects inflation in the GCC
- Monetary policy in the US affects oil prices, and thus government spending and growth in the US
- Monetary policy (via quantities) in the GCC affects inflation in the medium-term
- Monetary policy in the GCC does not affect growth in the GCC



- Capital intensity has been declining in a few GCC countries; TFP has also declined
- Dutch-Disease probably not the issue, at least recently, thanks to the supply side effect of migrant workers
- A rich and large public sector has less incentives to spend money efficiently
- A large government also creates rent seeking and crowds out the private sector
- Growth and fiscal spending volatility is very high
- Fiscal policy is powerful, but has been procyclical
- Monetary policy has not been effective at stabilizing growth and inflation