

Middle East and Central Asia Department

Saudi Arabia: Tackling Emerging Economic Challenges to Sustain Growth

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Contents

Acknowledgments.....	
Introduction.....	1
1 Outlook for the Global Oil Market and the Implications for Saudi Arabia	5
<i>Malika Pant and Alberto Behar</i>	
Outlook for the Global Oil Market.....	5
Saudi Arabia’s Role in the Global Oil Market.....	13
Potential Implications of Global Oil Market Developments for Saudi Arabia	14
Conclusions.....	16
References.....	17
2 A Fiscal Framework to Support Growth and Manage Dependence on Natural Resource Revenues.....	19
<i>Tim Callen and Haonan Qu</i>	
Overview of Key Fiscal Policy Challenges in Saudi Arabia	19
Fiscal Rules and Medium-Term Budget Frameworks	20
Experiences in Commodity Exporting Countries.....	22
Public Investment Management in Oil Exporting Countries... ..	26
A Fiscal Reform Agenda for Saudi Arabia.....	28
Appendix 2.1. Data Envelope Analysis and Partial Free Disposal Hull as a Nonparametric Methodology.....	35
References.....	36
3 Monetary and Macroprudential Policies in Saudi Arabia.....	37
<i>Naif Alghaith, Ahmed Al-Darwish, Pragyana Deb, and Padamja Khandelwal</i>	
Monetary Policy in Saudi Arabia.....	37
Macroprudential Policy in Saudi Arabia.....	38
Conclusions and Policy Recommendations.....	39
Appendix 3.1. Empirical Methodology.....	56
References.....	58

4 Economic Diversification in Saudi Arabia: The Past, the Present and the Way Forward.....61

Amgad Hegazy

Diversification in Saudi Arabia's Economy over the Past Decade.....	62
Experiences with Economic Diversification in Oil-Exporting Countries.....	71
Business Environment: How Does Saudi Arabia Compare with Other Countries?.....	73
Policies to Support Further Economic Diversification in Saudi Arabia.....	77
References.....	81

Boxes

1.1. Unconventional Tight Oil in the United States.....	8
2.1. Norwegian Governance Framework for Public Investment Projects.....	34
4.1. Ongoing Efforts to Diversify Saudi Arabia's Energy Sector.....	64
4.2. Saudi Arabia and Mexico: Compositional Differences in Output Structures and Export Sophistication.....	68
4.3. Saudi Arabia, Global Trade, and the World Trade Organization.....	69

Figures

1.1 Recent Developments in the Global Oil Market.....	6
1.2 Call on OPEC: Uncertainties around the Medium-Term Outlook.....	11
1.3 Monthly Crude Oil Production, 1990–October 2014.....	13
1.4 Change in Saudi Arabian Oil Production.....	14
1.5 Impact on Saudi Fiscal Balance in 2015 Under the Baseline Scenario.....	15
2.1. Volatility of Real Resource Revenue and Expenditure.....	20
2.2. Countries That Have Adopted Fiscal Rules.....	21
2.3. Standard Deviation of Oil Prices, 2000–10.....	25
2.4. Public Capital Expenditure, 2001–12.....	26
2.5. World Competitiveness Indicators, 2013.....	26
2.6. Public Capital Stocks and Infrastructure Quality, 2005–11.....	27
2.7. DEA and PFDH Scores.....	28
2.8. Total Revenue and Expenditures, 2000–12.....	30
2.9. Oil Prices, 2003–13.....	32
2.10. Structural Revenue and Expenditure Decomposition 2003–13.....	32
A2.1. Efficiency Frontier under the DEA Concept.....	35
3.1 Interest Rates in Saudi Arabia, 1990–2014.....	41
3.2 Contributions to Monetary Base Growth.....	41
3.3 Liquidity Management by SAMA.....	42
3.4 Impulse Responses from a Cholesky 1 Standard Deviation Shock.....	45

3.5 Growth in Bank Credit and Oil Prices.....	46
3.6 Change in Credit Growth After the Introduction of Instruments.....	49
3.7 Canada: Residential Mortgage Credit, 2006–13.....	51
3.8 Canada: House Prices, 2006–13.....	51
4.1. Real GDP: 2004–13.....	62
4.2. Contributions to Real Non-Oil Growth.....	63
4.3. Labor Market Developments: Breakdown of Employment and Average Wage by Sector.....	66
4.4. Saudi Arabia Export Structure.....	67
4.5. Business Environment Indicators.....	75
4.6. Export Competitiveness Indicators.....	76
4.7. Education-related Indicators.....	78

Tables

1.1 Global Oil Demand and Supply: Medium-Term Outlook.....	12
1.2 Saudi Arabia’s Role in the Global Oil Market.....	13
1.3 Impact of Different Oil Market Scenarios on Saudi Arabia in 2015.....	15
3.1 Monetary and Exchange Rate Policy Framework of Selected Commodity Exporters, end-April 2013.....	39
3.2 Macroeconomic Performance in Selected Commodity Exporters.....	40
3.3 Macroprudential Toolkit of Selected Commodity Exporters, 2013.....	47
3.4 Summary of Literature Findings on Effectiveness of Macroprudential Tools.....	50
3.5 Macroprudential Framework of Selected Commodity Exporters, 2013... ..	53
3.6 Proposed SAMA Macroprudential Dashboard.....	54
A3.1. Correlation Matrix of Innovations.....	56

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Introduction

Saudi Arabia's economy has grown very strongly in recent years as it has benefited from high oil prices and output, strong private sector activity, increased government spending, and the implementation of a number of domestic reform initiatives. Rising oil prices and oil production have also resulted in large external and fiscal surpluses, and government debt has declined to very low levels.

The economic outlook remains favorable. Nevertheless, the substantial drop in oil prices since the summer of 2014 is an important risk to the outlook. The Saudi Arabian economy remains very dependent on oil revenues to support growth and fiscal and external balances—over 90 percent of fiscal revenues and 80 percent of export revenues come from the sale of oil. Developments in the global oil market are therefore central to the economic outlook. Lower oil prices will have an immediate negative effect on the fiscal and external balances, and over time will also likely lead to slower growth.

The reliance of the Saudi Arabian economy on oil revenues raises two key challenges for policymakers. The first is how they should best manage the country's current heavy dependence on oil revenues and ensure that the domestic economy is insulated to the extent possible from volatility in the global oil market. The second is how they can help the economy to diversify so that the current reliance on oil revenues is reduced over time. The four chapters in this paper, which were written as background papers for the Article IV consultation with Saudi Arabia during May 2014, address important aspects of these challenges.

Chapter 1 assesses the outlook for the oil market in the face of ongoing developments in the demand and supply of oil—specifically subdued global growth, the rapid increase in oil production in the United States, and ongoing security issues in a number of key oil-exporting countries. It develops scenarios of what different oil market developments could mean for the oil production and fiscal policy outlook in Saudi Arabia. It concludes that although there is considerable uncertainty about the oil market outlook, there is the potential for oil supply to grow more quickly than oil demand in the coming years, which would put downward pressure on oil prices (a scenario that has occurred in recent months). How Saudi Arabia responds with its own production will have important implications for the global oil market and for the fiscal outlook in Saudi Arabia. Nevertheless, whether oil prices or output adjust downward, the fiscal (and external) balance will deteriorate.

Chapter 2 looks at the key fiscal policy challenges facing Saudi Arabia, including the need to insulate the economy and the budget from large or sudden fluctuations in oil revenues (that is, revenue fluctuations should not feed into the non-oil economy through procyclical spending decisions), the need to ensure that oil revenues are used efficiently for development purposes, and the need to save enough of the current stream of oil revenues for use by future generations given that oil is a nonrenewable resource. The chapter looks at the experiences with fiscal rules and medium-term budget frameworks in other natural-resource-producing countries and sets out a fiscal reform agenda for Saudi Arabia. In particular, it suggests that this agenda should include strengthening the annual budget to make it a better guide to the government's fiscal policy intentions; introducing a medium-term fiscal framework to guide spending decisions on a multi-year basis; using a structural budget rule to guide decisions under the medium-term fiscal framework (without at this stage introducing a formal fiscal rule); and reviewing the public investment management framework.

Chapter 3 looks at the role of monetary and macroprudential policies in Saudi Arabia given the Saudi riyal's long-standing peg to the U.S. dollar. The peg has served the country well by providing credibility to monetary policy and stability to trade, income flows, and financial assets. Under the peg, fiscal policy is the primary macroeconomic management tool, although there is a complementary role for liquidity management operations and macroprudential policy in macroeconomic and financial sector management. Large external surpluses and fiscal spending, supported by oil revenues, have resulted in a liquidity surplus in the banking system. Although SAMA is developing its liquidity management tools, a more could still be done to develop policy instruments, and a liquidity forecasting framework is needed to manage banking system liquidity. Regarding macroprudential policies, the chapter argues that Saudi Arabia would benefit from setting up a formal macroprudential framework, with SAMA as the designated macroprudential authority, to help manage systemic risks. The publication of early warning indicators and risk assessments and the development of a broader array of countercyclical macroprudential policy instruments would also help identify and manage financial sector risks in the face of volatile oil revenues.

Chapter 4 looks at Saudi Arabia's experience with economic diversification as it attempts to move away from its current reliance on oil. The government has utilized rising oil receipts to increase spending on infrastructure and education, and in tandem has taken steps to improve the business climate and increase access to finance, especially for small and medium enterprises. The share of non-oil output in GDP has increased steadily, although export diversification has been more limited. Although non-oil exports have grown quite strongly, they remain a small share of total exports and are largely concentrated in products closely related to

oil (such as petrochemicals). Saudi Arabia does not appear to suffer from traditional Dutch disease problems holding back the development of a competitive non-oil tradable sector, but the chapter argues that oil revenues may crowd out tradable production in other ways. The relatively higher wages and benefits available in the public sector compared to the private sector mean that the former is often a more attractive employment choice for nationals, particularly the lower-skilled. For firms, producing goods and services to meet the consumption and investment needs of the domestic market is a more reliable profit source than gearing business plans toward riskier export activities. The chapter argues that addressing these incentive issues can help resolve a missing element in Saudi Arabia's diversification strategy.

In sum, two overriding policy messages can be drawn from the chapters in this paper. First, although the Saudi Arabian economy has performed very well and is in a position of strength, there is scope to strengthen macroeconomic and financial policy frameworks to ensure that policymakers have the tools, incentives, and authority to address future challenges as they emerge. Second, given the outlook for the global oil market, Saudi Arabia will not be able to rely on rising oil prices and increasing government spending to drive economic growth in the future. Rather, a more diversified economy needs to emerge to sustain growth and generate the jobs that the young and growing population desires.

1

Outlook for the Global Oil Market and the Implications for Saudi Arabia

Malika Pant and Alberto Behar

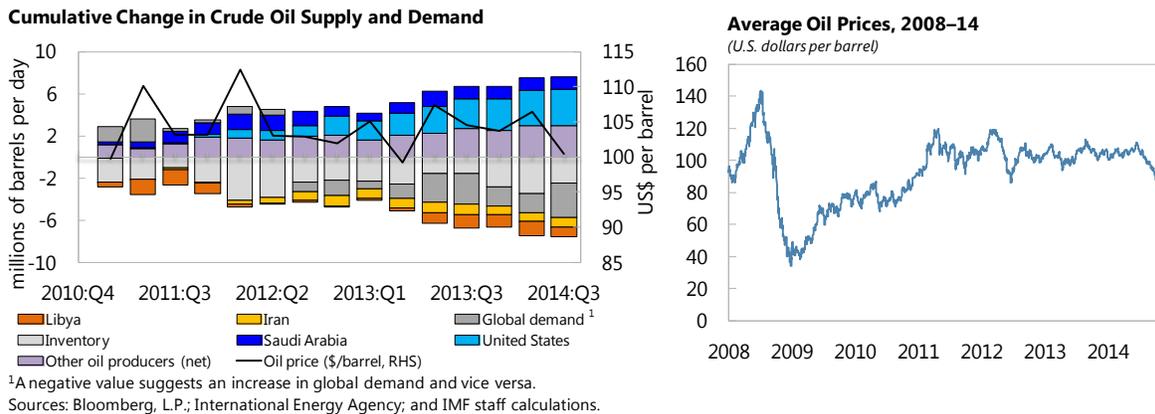
A number of factors are likely to affect the global oil market in the coming years, including the strength of the global recovery, the path of oil production in the United States, and the extent of supply outages in countries experiencing conflict and political instability. Although these factors mean there is considerable uncertainty about the oil market outlook, there is potential for supply to continue to grow more quickly than demand in the coming years. In the past, Saudi Arabia has shown an ability and willingness to respond to changing conditions in the global oil market to help balance demand and supply. How it responds in the future will have important implications for the global oil market as well as for fiscal and external balances in Saudi Arabia.

Outlook for the Global Oil Market

The global oil market has been affected by competing factors over the past several years (Figure 1.1). Global oil demand has increased modestly over the past three years (by 2.5 million barrels a day or mbd), driven by demand in nonmember countries of the Organization for Economic Cooperation and Development (OECD). Substantial oil production outages in Libya and Iran have reduced output by more than 2 mbd in several quarters when compared with production levels at end-2010. At the same time, oil production in the United States has increased by more than 2 mbd since the end of 2010, output in Saudi Arabia has risen, and supply from countries such as Iraq, Kuwait, and the United Arab Emirates has increased. Overall, these developments resulted in broadly stable oil prices, which hovered within the \$100–\$120 a barrel range between 2011 and August 2014. Prices, however, have dropped by more than 25 percent since the beginning of September 2014 and, at the time of this writing, stand at about \$75 a barrel,¹ their lowest since September 2010.

¹ Prices as of November 14, 2014.

Figure 1.1. Recent Developments in the Global Oil Market



In the near term, although demand for oil should increase given the projected pickup in the global economy, supply uncertainties remain. These include uncertainties about how the ongoing violence in Iraq will affect its future production path, and uncertainties about the situation surrounding Ukraine. Even amid deepening turmoil, Libya’s oil production recovered from June 2014 onward, but the future path of recovery in output remains uncertain given the ongoing unrest. Besides Libya and Iran, supply disruptions in Nigeria, South Sudan, and Venezuela could adversely affect oil output. Additionally, falling oil prices may hurt further investments in oil capacity in areas where the production costs are high (IEA, 2014a). Nevertheless, if U.S. production continues to exceed expectations, the political situation in Libya and Iraq stabilizes, or sanctions against Iran are eased, oil supplied to the global market could exceed expectations.

Over the medium term, the rate of increase in the supply of oil will be determined by the following factors:

- *The ongoing boom in unconventional U.S. oil.* The continuing surge in light tight oil production is expected to increase total oil production in the United States, including natural gas liquids (NGLs), by 2.8 mbd by 2019 according to estimates by the International Energy Agency (IEA). The U.S. Energy Information Administration (EIA) projects relatively smaller increases in production over the medium term and light tight oil output to peak around 2018, while BP estimates tight oil production to grow quickly by 1.5 mbd between 2012 and 2015 and then to grow at a much slower pace, to reach 4.5 mbd by 2030. Estimates by the Organization of the Petroleum Exporting Countries (OPEC) are broadly in line with the EIA baseline in the medium term (see Box 1.1).

- *Other non-OPEC producers, such as Canada and Brazil, increasing their oil production.* Unconventional oil from the Canadian oil sands is estimated to increase non-OPEC supply by 1.2 mbd by 2019, while Argentina and Brazil are expected to add another 1 mbd and 0.8 mbd, respectively (IEA, 2014). Altogether, the non-OPEC oil supply could increase by 6.3 mbd (including NGLs) by 2019 as a result of these developments and those in the United States (Table 1.1).
- *Increases in production capacity in some OPEC countries.* Estimates are that OPEC production capacity will increase by 2.1 mbd by 2019, largely due to increases in Angola, Iraq, and the United Arab Emirates, although the uncertain situation in Iraq could reduce this. Uncertainties surround the production outlook in Iran, because of the sanctions, and also because of uncertainties about how quickly production could be increased if sanctions are eased.
- *The decisions of Saudi Arabia.* IMF staff projections assume that Saudi oil exports remain broadly unchanged over the next five years, but that production (9.7 mbd in 2013) increases modestly by 0.5 mbd, reflecting growing domestic energy consumption. Saudi Arabia has traditionally maintained excess production capacity.

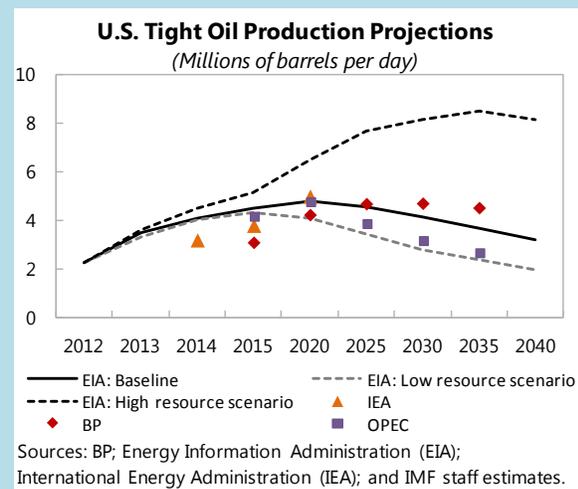
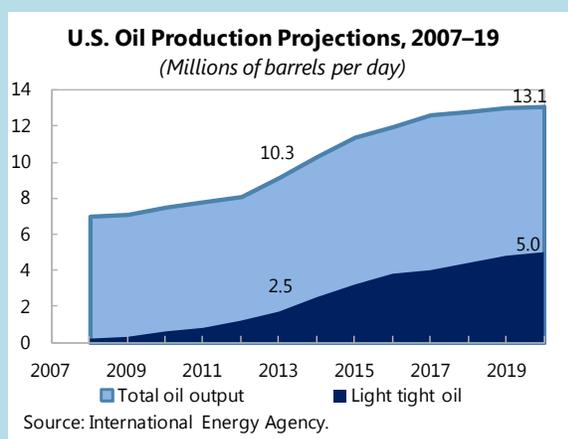
On the demand side, although OECD demand is likely to remain subdued, higher consumption in non-OECD countries is expected to keep global demand strong in the medium term. The projected increase in global oil demand of 7.7 mbd by 2019 is driven mainly by non-OECD demand, which is projected to increase by 19 percent or 8.6 mbd. Non-OECD demand growth in the past few years has been driven by the rapid growth in BRICS (Brazil, Russia, India, China and South Africa). Saudi oil consumption is expected to remain strong, but decelerate slightly in the medium term (IEA, 2014a). Demand growth is also projected to pick up in several other non-OECD economies, including some African economies. Demand for oil in OECD countries is expected to decline due to gradual changes in energy consumption patterns, improved energy efficiency, and incentives to switch from oil to alternative fuels due to high oil prices and increased availability of natural gas. BP's long-term projections up to 2035 suggest further declines in OECD countries' demand for oil, particularly in the transport sector, driven mainly by improvements in energy efficiency. Eventually, global demand for oil in the transport sector is also expected to slow after 2025 driven by similar efficiency gains and fuel switching away from oil (BP, 2014a).

Box 1.1 Unconventional Tight Oil in the United States *Recent Trends*

Over the past few years, the United States has witnessed a sudden and rapid growth in oil and gas output due to new technical abilities to extract light tight oil through unconventional sources, reversing a long period of production decline. Light tight oil production was 2.5 mbd in 2013 and constituted 24 percent of total U.S. production of crude oil and other petroleum liquids. The emergence of unconventional oil has helped increase overall U.S. oil production by 30 percent over the past five years. Both advances in new technologies and high oil prices made it economically viable to extract tight oil. Technological advances (e.g., horizontal fracturing and drilling) have helped to unlock unconventional oil and gas from tight-rock formations including shale. And even though the cost of tight oil extraction is quite high, sustained high oil prices in the past few years made it economically viable to produce tight oil. However, if oil prices were to remain at the current level of \$75 a barrel over the next few years, some of the extraction may no longer be economically viable, causing a slowdown in U.S. tight oil production. The breakeven cost of light tight oil production for 98 percent of U.S. fields was estimated to be less than \$80 a barrel in 2013, but the percentage of production with breakeven prices higher than \$80 a barrel is expected to rise over the medium term (IEA, 2014b), which would increase the sensitivity of tight oil production to oil prices.

Medium- and Long-Term Outlook

Over time, greater knowledge and experience has permitted better estimates of technically recoverable unconventional shale oil resources. The International Energy Agency (IEA) estimates U.S. tight oil production to increase by another 2.5 mbd to 5 mbd over the medium term. The projected trends by the Organization of the Petroleum Exporting Countries (OPEC) are broadly in line with projections by the IEA and the U.S. Energy Information Administration (EIA) in the medium term, and light tight oil supply in the United States and Canada is expected to peak around 2017–19 at 4.8 mbd,¹ and then decline gradually to 2.7 mbd by 2035, which is in line with the EIA low resource scenario. The longer-term outlook by the EIA suggests that U.S. tight oil production is likely to plateau around 2018 at 4.8 mbd before declining in the long term, while BP projects it to continue to grow and exceed 4.5 mbd by 2030 (BP, 2014b). These differences across forecasters mainly reflect a variety of uncertainties related to both technology and policy.



Box 1.1 Unconventional Tight Oil in the United States *Recent Trends (concluded)*

Impact on the Global Oil Market

One of the estimates by the EIA suggests that recoverable resources in the United States amount to 33 billion barrels (EIA, 2013). The increase in U.S. production has reduced its dependence on imported oil and has substantially improved the U.S. energy trade balances by reducing its net imports of crude oil and related liquids by almost 50 percent (EIA, 2013). Since U.S. tight oil is of a light and sweet variety, the ripple effects of its production growth have been unevenly distributed. Exporters of light grades, such as Algeria and Nigeria, have seen their exports to the United States fall by 60–80 percent over the past five years. The producers of heavier sour grades have done much better given the technical specifications of U.S. refineries; for example, Saudi Arabia's exports to the United States have remained broadly stable since 2010 (Saudi Aramco also owns stakes in several U.S. refineries). The unconventional oil boom is also causing an unanticipated shift in the mix of crude oil grades—exacerbating pressures on the global refining industry—although refiners in the Middle East are better positioned to manage this trend than some of their peers.

Oil demand is also likely to be affected by the boom in shale gas, with the use of gas becoming an important source of primary energy in many sectors. Besides the United States, countries like Argentina, China, and Mexico have focused on pursuing unconventional natural gas rather than oil due to different geology, water availability, and infrastructure. Among various sectors consuming oil, switching from oil to gas has picked up the most in the increasingly efficient transport industry, which is the largest consumer of oil.

Unconventional Oil Boom Outside the United States

Canadian oil sands account for half of the Canadian liquids production, and production is projected to average 3 mbd by 2019 (IEA, 2014b). BP estimates that tight oil will slowly expand in other countries and account for 7 percent of global supply, while Canadian oil sands are estimated to reach a market share of 5 percent by 2035. The IEA projects that the tight oil supply outside of the United States could reach 0.7 mbd from Argentina, Canada, and Russia, while Australia and Mexico are also expected to start producing marginal amounts of tight oil by 2019.

In sum, the expansion of unconventional oil production will continue, but is subject to uncertainties relating to technology and policy. The economic viability of production will depend on the future trends in oil prices. If oil prices remain around current levels of \$75 a barrel, this may lead to some downward revisions in the medium-term outlook for unconventional oil supply.

¹ See OPEC (2013) and IEF (2014).

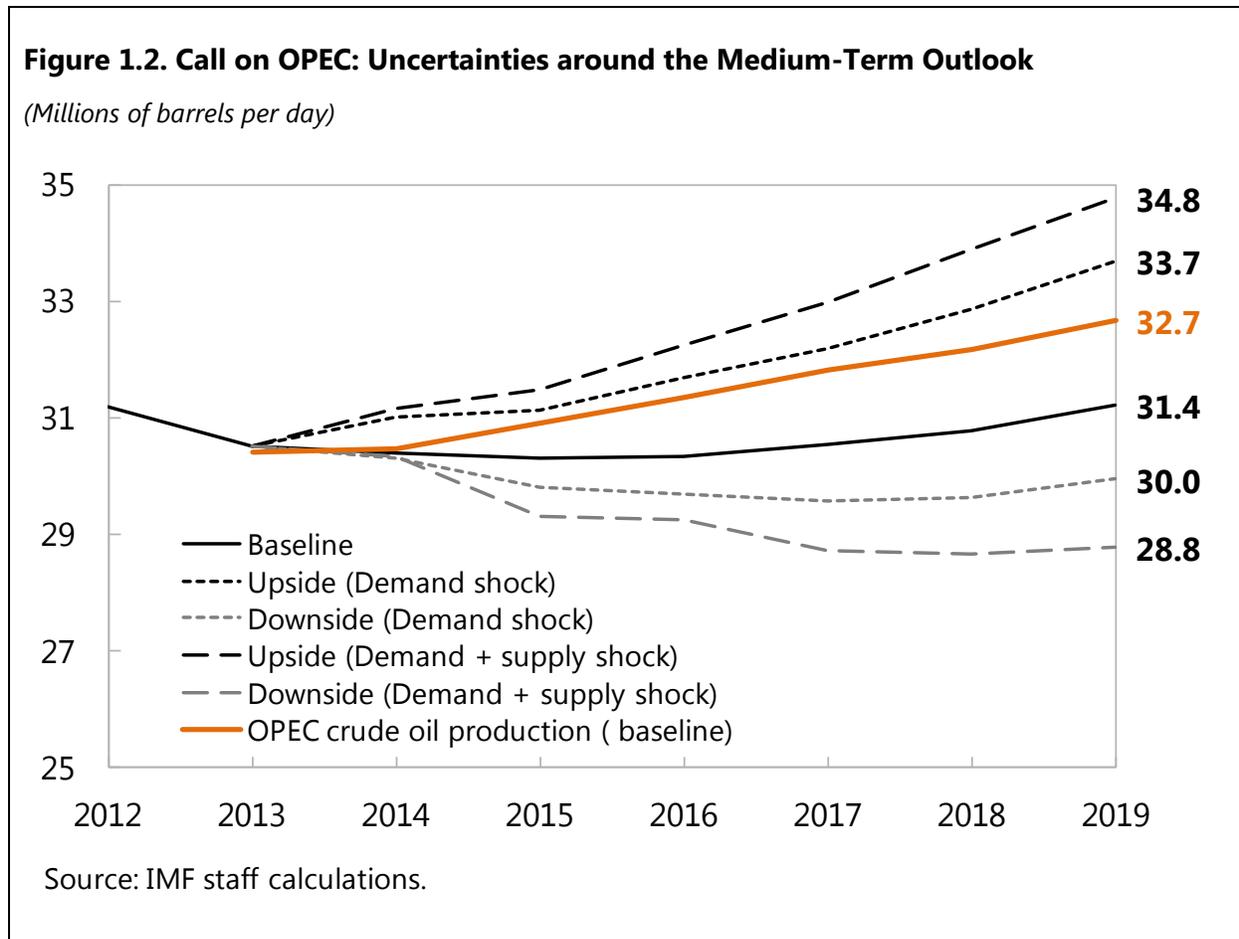
Putting the demand and supply outlooks together suggests that the oil market will be oversupplied, although there are considerable uncertainties. The medium-term outlook for the global oil market, anchored on the latest available IEA forecast, suggests that supply could continue to exceed demand, assuming only marginal inventory accumulation in the forecast period (Table 1.1). Despite a 7.7 mbd increase in global demand by 2019, high non-OPEC oil supply (6.3 mbd by 2019) would imply that the demand for oil from OPEC would remain broadly unchanged for the next few years and increase only marginally to 31.2 mbd by 2019 (versus 30.5 mbd in 2013). This implies that the baseline projection for the OPEC crude oil supply (32.7 mbd in 2019) would be much higher over the medium term and more than the demand by 1.4 mbd in 2018 and 2019. This outlook could sustain the downward pressure on oil prices unless production adjusts to partially reduce the excess supply. The price downside, however, would be limited by the high breakeven cost of the unconventional oil producers.

Projections for the demand and supply of oil are subject to considerable uncertainty. With regard to U.S. oil production, uncertainties regarding the actual level of resources available, evolution of technologies, and the associated cost to recover them are captured by the high and low oil resource cases developed by the EIA.² The update from the EIA in May 2014 raised the base case for U.S. oil production in line with the EIA's previous upside scenario following the substantial increase in U.S. tight oil production in 2013. This update illustrates the ongoing uncertainties surrounding the outlook for U.S. oil production over the medium term. Also, the uncertainties seen in other key oil-producing countries in recent years may continue, restricting the increase in supply. On the demand side, weaker growth in China, not only through the direct impact of lower demand for oil from China but also from the cascading effect of spillovers of slower Chinese growth, could affect demand for oil in other economies.

The wide range of uncertainties regarding the outlook for the demand and supply of oil over the medium term could affect the call on OPEC. To illustrate the range of uncertainties around the call on OPEC, the impact of different global oil demand and non-OPEC supply outcomes are considered (Figure 1.2). The demand-side risk to the baseline is defined as the change in global oil consumption from a 1 percent shock (both positive and negative) to world GDP growth, assuming no change in income elasticities. On the supply side, uncertainties around non-OPEC oil supply are based on the above-mentioned high and low resource scenarios for U.S. oil

² Projections for the high and low oil resource cases versus the baseline (reference case) are reported in EIA (2014). Trends in the high and low oil resource scenarios are superimposed on the IEA baseline for U.S. oil production to derive the range of uncertainties around the baseline.

production from the EIA. If the combined downside risk scenario of higher non-OPEC supply and lower global demand compared to the baseline were to materialize, demand for OPEC oil would be much lower than the OPEC production in the baseline. The estimated excess supply over demand would be about 3.9 mbd (versus 1.4 mbd in the baseline). On the other hand, the combined upside risk would result in excess demand over supply of about 2.1 mbd by 2019. This may require Saudi Arabia to use its spare capacity to produce more to meet demand (Saudi Arabia's spare capacity is about 2.7 mbd).



Additionally, if the ongoing unrest in some OPEC countries affects their production, excess supply could be lower than the baseline. The baseline assumes that production in Iraq would increase in line with its production capacity, while Libya would continue to produce slightly above the 2014 level over the medium term. If instead production in Iraq and Libya were to remain unchanged over the medium term at their current production levels (reported at 3.3 mbd and 0.7 mbd, respectively, in the November 2014 IEA monthly oil market report), excess supply in the baseline would be reduced to around 0.4 mbd (from 1.4 mbd).

Table 1.1. Global Oil Demand and Supply: Medium-Term Outlook*(Millions of barrel per day)*

					Projections					
		2011	2012	2013	2014	2015	2016	2017	2018	2019
Under Baseline										
Call on OPEC crude		30.1	31.2	30.5	30.4	30.3	30.3	30.5	30.8	31.2
Excess supply for crude		-0.2	0.0	-0.1	0.1	0.6	1.0	1.3	1.4	1.4
Global demand		89.5	90.5	91.4	92.8	94.2	95.5	96.8	98.0	99.1
Change in inventories		-0.9	0.3	0.1	0.2	0.2	0.2	0.2	0.2	0.2
Global supply		88.6	90.8	91.5	93.0	94.4	95.7	97.0	98.2	99.3
Non-OPEC		includes NGLs								
United States		8.1	9.1	10.3	11.4	12.0	12.6	12.8	13.0	13.1
OPEC		35.8	37.5	36.7	37.0	37.7	38.3	38.9	39.2	39.8
Crude		29.9	31.2	30.4	30.5	30.9	31.3	31.8	32.2	32.7
NGLs		5.8	6.2	6.3	6.5	6.8	7.0	7.0	7.1	7.1
Saudi Arabia		9.3	9.8	9.6	9.7	9.7	9.8	9.9	10.0	10.1
Iran		3.6	3.0	2.7	2.8	2.8	2.8	2.9	2.9	2.9
Iraq		2.7	3.0	3.1	3.3	3.5	3.6	3.8	3.9	4.1
UAE		2.5	2.7	2.8	2.7	2.9	3.0	3.1	3.1	3.1
Kuwait		2.5	2.7	2.8	2.8	2.8	2.7	2.7	2.5	2.4
Qatar		0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Angola		1.6	1.8	1.7	1.7	1.8	1.8	1.9	2.0	2.1
Nigeria		2.2	2.1	2.0	1.9	1.9	2.0	1.9	2.0	2.0
Libya		0.5	1.4	0.9	0.7	0.8	0.8	0.9	1.0	1.0
Algeria		1.3	1.2	1.1	1.1	1.1	1.0	0.9	0.9	0.8
Ecuador		0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.7	0.7
Venezuela		2.5	2.5	2.5	2.5	2.4	2.4	2.5	2.6	2.7
Under Risk Scenarios										
Call on OPEC		Upside (Demand shock) ¹			31.0	31.2	31.7	32.2	32.9	33.7
		Upside (Demand + supply shock) ²			31.2	31.5	32.2	33.0	33.9	34.8
		Downside (Demand shock)			30.3	29.8	29.7	29.6	29.6	30.0
		Downside (Demand + supply shock)			30.3	29.3	29.3	28.7	28.7	28.8

Sources: IEA (2014b); IEA Monthly Oil Report, November 2014; EIA (2014); and IMF staff estimates.

¹Demand shock is defined as increase/decrease in global oil consumption following a one percent increase/decrease in world GDP growth.²Supply shocks are based on the high and low resource scenarios prepared by the U.S. Energy Information Administration (EIA, 2014)

Note: NGLs = natural gas liquids.

Saudi Arabia's Role in the Global Oil Market

Saudi Arabia is a key player in the global oil market, accounting for more than 16 percent of global proven reserves. The country and has been able to scale up its production quickly because of its high spare capacity of more than 2.7 million barrels a day, which accounts for more than half of global spare capacity (Table 1.2).³ This enables Saudi Arabia to play a key role in the global oil market and contribute positively to global economic stability and growth.

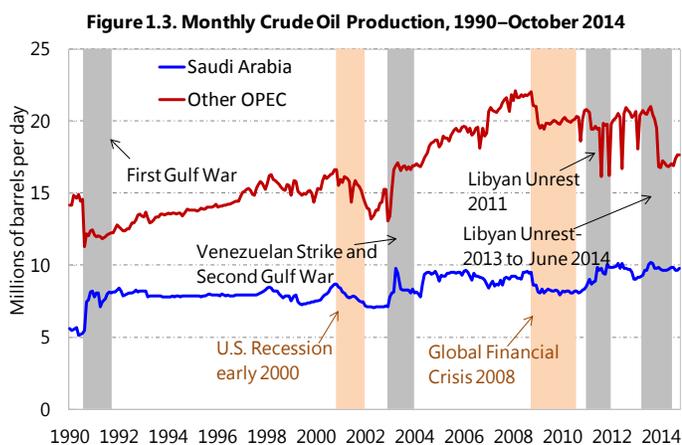
In the face of supply interruptions in other countries or demand surges, Saudi Arabia has responded by increasing its production to help balance demand and supply in the oil market (Figure 1.3). For example, during the first Gulf War (1990–91), the Venezuelan strike and the second Gulf War (2002–03), Hurricane Katrina in 2005, the surge in China's demand in 2004, and the Libyan crisis (2010–11), Saudi Arabia increased its production to ensure that demand for oil was met

in the face of declining supply from other sources (IMF, 2013b). Similarly, at times of weak or declining global oil demand or supply recovery, such as the U.S. recession in the early 2000s and the global financial crisis (2008–10), Saudi Arabia scaled back its production in response to market conditions (by 1.6 mbd and 1.4 mbd, respectively, in these periods).

Table 1.2. Saudi Arabia's Role in the Global Oil Market

	Cumulative Production (1990–2013)	Average Spare Capacity (2013)	Reserves (2013)	
	Billions of barrels	Million barrels/day	Billion barrels	Percent of world total
Saudi Arabia	82.0	2.7	265.9	15.8
Russia	73.8	...	93.0	5.5
United States	63.5	...	44.2	2.6
Iran	33.6	0.2	157.0	9.3
China	30.0	...	18.1	1.1
Mexico	28.6	...	11.1	0.7
Venezuela	26.9	0.1	298.3	17.7
Canada	23.6	...	174.3	10.3
Norway	22.2	...	8.7	0.5
UAE	22.6	0.1	97.8	5.8
Nigeria	18.9	0.3	37.1	2.2
Kuwait	19.1	0.1	101.5	6.0
United Kingdom	16.9	...	3.0	0.2
Iraq	15.8	0.2	150.0	8.9
OPEC	264.6	3.8	1214.2	71.9
World	642.5		1687.9	100.0

Sources: BP(2014a); International Energy Agency; and IMF staff calculations.

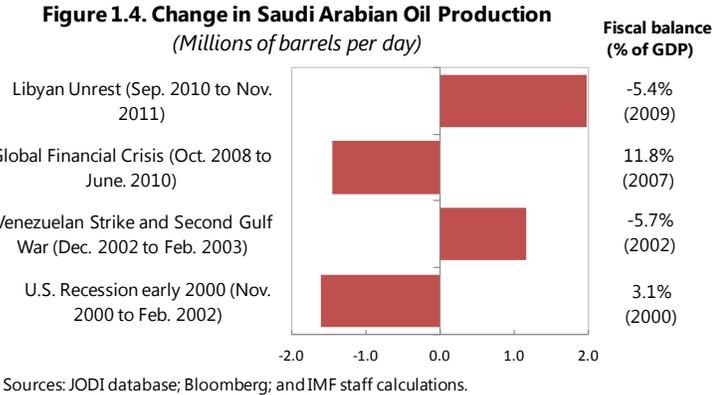


Sources: JODI database, Bloomberg; and IMF staff calculations.

³ Spare capacity is defined by the IEA as additional production capacity levels that can be reached within 30 days and sustained for 90 days.

In the recent past, Saudi Arabia has continued to help balance the global oil market. It raised its oil production in the first half of 2012 as sanctions on Iran were tightened, but then scaled back production in the second half of 2012 as output in Iraq, Libya, and the United States increased. It then increased production again in the second half of 2013 as Libyan production fell. However, the rapid increase in U.S. oil production since late 2012 resulted in less of an increase in production by Saudi Arabia to meet supply shortfalls elsewhere than during 2011. According to the most recent months available (up to October 2014), Saudi production has remained broadly unchanged despite the drop in oil prices.

A strong starting fiscal position has helped Saudi Arabia manage periods of lower oil production (Figure 1.4). The periods when oil production was reduced occurred at times when the budget was in substantial surplus in the year before the cutback.



Potential Implications of Global Oil Market Developments for Saudi Arabia

The uncertain medium-term outlook for the oil market could have implications for Saudi Arabia. The baseline scenario suggests that the supply of oil could exceed demand by up to 1.4 mbd. If OPEC supply does not respond, then oil prices would likely fall. The upside and downside scenarios suggest that there are considerable uncertainties around the outlook.

How Saudi Arabia chooses to respond to future demand and supply trends will be important for the dynamics in the oil market. Three illustrative cases are considered for how Saudi Arabia responds (no adjustment, adjustment by half, and full adjustment) under three different assumptions about the price elasticity of demand for oil (-0.2, -0.1, and -0.05).⁴ The impact of

⁴ A wide range of estimates of the demand elasticity of oil in response to a change in price are found in the literature. For example, the IMF’s World Economic Outlook reports in April 2005 and April 2011 estimated short-term demand elasticities of -0.02 and -0.1, while Kilian and Murphy (2012) estimate -0.25, and the analytical work underpinning IMF (2014) estimates quarterly elasticities of -0.07 to -0.2. Supply outside of expected to hold as long as the oil price level stays above the breakeven cost for shale oil production because,

different responses under the baseline, downside, and upside scenarios in 2015 on the fiscal balance in Saudi Arabia is shown in Table 1.3.

Table 1.3. Impact of Different Oil Market Scenarios on Saudi Arabia in 2015

	Baseline Scenario			Downside Scenario			Upside Scenario		
Change in oil production (in mbd)									
No adjustment	0.0			0.0			0.0		
Full adjustment	-0.6			-1.6			0.6		
Adjustment by half	-0.3			-0.8			0.3		
Price Elasticity of Demand¹									
	-0.2	-0.1	-0.05	-0.2	-0.1	-0.05	-0.2	-0.1	-0.05
Impact on oil price (percent change)									
No adjustment	-3	-6	-12	-8	-17	-33	3	6	12
Full adjustment	0	0	0	0	0	0	0	0	0
Adjustment by half	-2	-3	-6	-4	-8	-17	2	3	6
Impact on oil revenue (percent change)									
No adjustment	-3	-6	-12	-8	-17	-34	3	6	12
Full adjustment	-7	-7	-7	-19	-19	-19	7	7	7
Adjustment by half	-5	-6	-9	-13	-17	-25	5	7	10
Impact on fiscal balance (in percent of GDP)									
No adjustment	-1	-2	-4	-3	-6	-11	1	2	4
Full adjustment	-2	-2	-2	-6	-6	-6	2	2	2
Adjustment by half	-2	-2	-3	-4	-6	-8	2	2	3

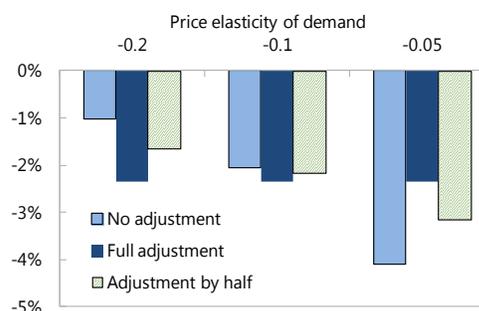
¹Assuming no supply reaction, price elasticity of demand of -0.05, -0.1 and -0.2 implies that a 1 percent increase in oil supply would lead to fall in oil prices by 20 percent, 10 percent and 5 percent, respectively.

Sources: International Energy Agency; Energy Information Administration; and IMF staff estimates.

The *full adjustment response* assumes that Saudi Arabia will cut its own production in 2015 to absorb all the excess supply of 0.6 mbd under the baseline. Consequently, there is no impact on prices. As a result, the fiscal balance would deteriorate by 2 percent of GDP in 2015 (Figure 1.5).

Figure 1.5. Impact on Saudi Fiscal Balance in 2015 under the Baseline Scenario

(Percent of GDP change from baseline)



Source: IMF staff calculations.

The *no adjustment response* assumes that Saudi Arabia does not adjust its production and continues to produce the amount assumed in

if oil prices drop below the cost of producing unconventional oil, then the producers of unconventional oil may scale back their production, reducing the total supply of oil. We also assume that the supply from other OPEC and non-OPEC producers remains unchanged from the baseline.

the baseline and as a consequence oil prices fall. Since output remains unchanged, the impact on revenues reflects the price effect alone, and differs significantly depending on the choice of the estimate of the price elasticity of demand. If a higher estimate of demand elasticity of -0.2 is used, then oil prices would need to fall by less to balance demand and supply (by 3 percent) and the fiscal balance would fall by 1 percent of GDP. However, if a smaller estimate of the demand elasticity of -0.05 is assumed, then oil prices would fall more substantially by 12 percent. Consequently, the fiscal balance would drop by 4 percent of GDP from the baseline in 2015. However, the extent of the fall in oil prices could be limited by the high breakeven cost of shale oil production, which could provide an effective floor for oil prices.

The *adjustment by half response*, under which Saudi Arabia cuts back production by half of that needed and prices partially adjust, falls in between the above two scenarios in terms of the impact on fiscal revenues.

The impact on fiscal balances is larger under the downside scenario compared to the baseline, but the fiscal balance could also improve if the upside risks materialize (Table 1.3). With a higher excess supply of 1.6 mbd in 2015, the impact on the fiscal balances under the downside scenario would be much larger for each of the three sets of price elasticities. On the other hand, the upside scenario suggests an excess demand of 0.6 mbd, which if met fully by Saudi Arabia, would improve its fiscal balance by 2 percent of GDP. Thus, the wide range of uncertainties in the global oil market would impact Saudi's oil revenue through changes in both the level of oil production and prices.

Conclusions

There are considerable uncertainties surrounding the outlook for the oil market. Demand for oil is set to increase, driven by strong growth in emerging markets, but supply increases from the United States and other countries have also surprised on the upside. However, the economic viability of unconventional oil production will depend on the future trend in oil prices. If oil prices remain at current levels, this could result in downward revisions in the medium-term outlook for unconventional oil supply. This creates further uncertainty regarding the outlook for U.S. production, which will depend on oil prices and technological and policy developments. Other uncertainties are also considerable, including from the global growth outlook, and the political situations in a number of key oil-producing countries. Indeed, there have been many negative supply shocks in the recent history of the global oil market. On balance, however, it appears that oil supply will continue to exceed demand in the coming years, sustaining the downward pressure on oil prices. Saudi Arabia has adjusted production several times in the past

to balance the market. How Saudi Arabia responds in the future will have important implications for the global oil market and for Saudi Arabia's own fiscal and external balances.

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2

A Fiscal Framework to Support Growth and Manage Dependence on Natural Resource Revenues

Tim Callen and Haonan Qu

Saudi Arabia derives more than 90 percent of its fiscal revenue from oil. Key challenges for fiscal policymakers are to insulate the economy and the budget from large fluctuations in oil prices, ensure that oil revenue is efficiently used for development purposes, and safeguard sufficient revenue for future generations. This chapter looks at the current fiscal framework in Saudi Arabia, analyzes the efficiency of public investment, and draws on the experience of other commodity-exporting countries to consider a set of reforms that would strengthen the fiscal framework in Saudi Arabia.

Overview of Key Fiscal Policy Challenges in Saudi Arabia

Fiscal policy plays a crucial role in Saudi Arabia as the main vehicle through which the country's oil wealth is converted into economic outcomes and distributed for the benefit of the population. Over the past several decades, government spending on infrastructure, education, and social programs has transformed the economy and supported higher living standards. The volatility of oil revenue, however, has posed challenges for fiscal management. Oil prices are volatile and price swings can be large and long-lasting. Saudi Arabia, with its spare production capacity, also helps manage the balance between supply and demand in the global oil market, and consequently sees swings in the volume of its oil exports.

Fiscal policy in Saudi Arabia has three distinct goals relating to development, stabilization, and intergenerational equity:

- The *developmental goal* involves making expenditure decisions with a view to long-term

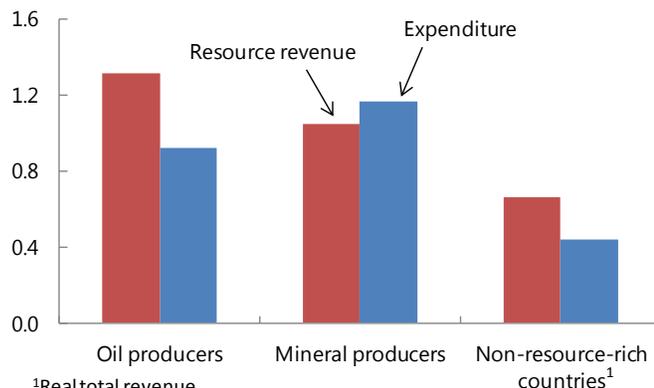
economic growth. Investments are made in physical and human capital to support growth and development. It is important that these investments efficiently meet the country's development goals.

- The *stabilization goal* relates to smoothing the impact of oil price swings or other shocks on the domestic non-oil economy. With the fixed exchange rate limiting the ability of monetary policy to respond, fiscal policy is the first line of defense in managing shocks.
- The *intergenerational equity goal* considers the nonrenewable nature of oil as a resource in the face of the country's dependence on oil revenue.

Typically, oil and mineral producers see higher volatility in government revenues and expenditures than nonresource-rich countries. This volatility often translates into weaker and more volatile growth performance than in nonresource rich countries

(Figure 2.1). In Saudi Arabia, there has been a clear improvement in fiscal management over the past decade and a noticeable decline in the volatility of government spending. Nevertheless managing volatility remains a key challenge. Indeed, with uncertainties about how the demand and supply balance in the global oil market will evolve in the coming years, designing a framework that will best support fiscal policy management in the face of uncertain oil revenue is critical if the country is to meet its development and growth objectives.

Figure 2.1. Volatility of Real Resource Revenue and Expenditure
(Coefficient of variation, average: 1992–2011)



¹Real total revenue.

Source: IMF, World Economic Outlook; and IMF staff estimates.

Fiscal Rules and Medium-Term Budget Frameworks

Across the world, there has been a move toward a greater reliance on fiscal rules and medium-term budget frameworks to help manage fiscal policy challenges. In 2013, 81 countries had adopted some type of fiscal rule, with budget balance and debt rules being the most common (Figure 2.2). Medium-term budget frameworks have been introduced in 61 countries.

The advantages of fiscal rules are that they provide sustainable, predictable, and stable fiscal policy. They can correct any lack of incentive in the collective decision-making process to contain spending pressures, strengthen the position of the Ministry of Finance in guarding fiscal discipline, and signal the fiscal policy intentions of the government to citizens and financial

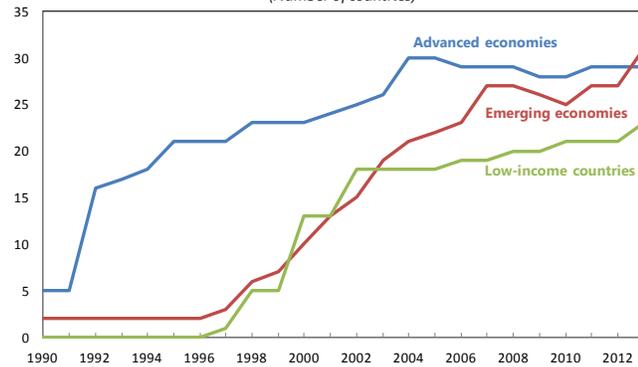
markets. This in turn creates more certainty for businesses and should encourage investment and employment. International experience shows that countries with fiscal rules tend to run larger primary balances.

However, fiscal rules have disadvantages as well. The lack of flexibility can be an issue in the face of large shocks such as the global financial crisis, and if the rules are jettisoned at these times there is a loss of credibility. A rule may also result in a focus on aggregate spending, rather than the composition of spending, and may induce the government to reduce easy-to-cut items like public investment to meet its target. Further, unless there is a strong political commitment to the rule, efforts will be made to circumvent it through off-budget spending, creative accounting, and reduced transparency.

The attractiveness of medium-term budget frameworks is that they can help plan, manage, and prioritize revenue and expenditure over a medium-term (three- to five-year) horizon. Annual budgets are not necessarily optimal for fiscal outcomes. Determining fiscal policy on an annual basis can result in incremental decisions rather than strategic choices, lead to overspending if the future implications of decisions made today are not taken into account, result in fiscal risks not being identified in time, and mean that the budget is not well-linked to the management of expenditure performance, which requires a medium-term focus.

Indeed, a fiscal anchor and a medium-term budget framework reinforce each other. A fiscal anchor provides clarity and specificity to fiscal policy by providing a top-down objective over a medium-term horizon, enhances the commitment and political ownership of the medium-term budget framework, and communicates in broad terms the government's fiscal policy intentions. Conversely, the medium-term budget framework provides the budget allocation and control process to deliver the objective established in the rule. It gives strength to the fiscal anchor by translating it into real decisions, demonstrates ahead of time whether government policy is consistent with the anchor or whether policy actions are needed, and provides the lead time for taking decisions that are needed to meet the requirements of the fiscal anchor.

Figure 2.2. Countries That Have Adopted Fiscal Rules¹
(Number of countries)



Source: IMF Fiscal Affairs Department, Fiscal Rules Database.
¹Figure includes both national and supranational fiscal rules.

Experiences in Commodity-Exporting Countries

The challenges of fiscal management in oil- and mineral-exporting countries are different than those challenges in other countries given the volatility of the main revenue source. A medium-term horizon is particularly important to prevent volatile annual revenues from translating into expenditure fluctuations that can destabilize the economy and reduce the quality of government spending. During upturns, these frameworks can help governments resist the natural pressure to increase spending when revenues are high and surpluses are large. During downturns, frameworks can help protect priority expenditures and maintain the strategic focus of policy plans. Setting and adhering to medium-term spending plans thus increases the chances that short-term spending pressures do not jeopardize long-term fiscal objectives.

It is therefore worth looking in more detail at a sample of oil- and mineral-exporting countries to assess their experiences with fiscal rules and medium-term budget frameworks. Five countries are considered in turn: Chile, Mexico, Mongolia, Norway, and Russia.

Chile has a long history of using fiscal rules and institutional frameworks to help manage the fiscal impact of its large copper exports. Chile established the Copper Stabilization Fund in the late 1980s, introduced a structural balance rule in 2001 and revised it in 2005, and enacted a Fiscal Responsibility Law in 2006. Committees of experts determine the reference (10-year ahead forecast) copper price and potential GDP to be used in the structural budget calculation. Under Chile's framework, the draft budget must contain medium-term (four-year) budget projections based on medium-term projections for GDP and commodity prices. Every new administration must present, within 90 days of taking office, its target for the structural balance for the duration of its term. Expenditures are budgeted in line with structural revenues and the structural balance target. The implementation of the rule has changed over time—from 2001–07, a constant target for the structural balance was set at a surplus of 1 percent of GDP in 2008, the target was 0.5 percent of GDP; and in 2009, the target was zero and a de facto escape clause was introduced to accommodate countercyclical measures. The current administration has specified a medium-term target of structural balance by 2018 from a deficit of 1 percent of GDP in 2014. A Fiscal Council that started operating in June 2013 oversees the existing committees on potential GDP and the long-run copper price. Two funds have been set up, the stabilization fund (ESSF) which covers fiscal deficits and amortizations, and the pension reserve fund (PRF) which is earmarked to cover a fraction of pension outlays starting in 2016.

The experience with fiscal rules in Chile is generally viewed as a success, and the rule is well understood by the public and market participants. Fiscal policy has helped shield the economy from large swings in copper prices, expenditure volatility is comparatively low, and the fiscal

position is strong compared to peer countries. Chile handled the global financial crisis well, using assets from the stabilization fund as a fiscal buffer. At the same time, amid the commodity boom in the early 2000s, the reference copper price was often revised up significantly, creating room for strong expenditure growth despite the fact the economy was already operating broadly at full capacity.

Managing its oil revenues has been a key issue for Mexico over the past decade. The country introduced a fiscal responsibility law (FRL) in 2006, and modified it in 2008. A balanced budget on a cash basis was established in the FRL, with an escape clause to be triggered during economic downturns (this clause was used from 2010–12). The rule applies to the federal public sector, which includes the central government, social security, and key public enterprises (e.g., the oil company, PEMEX, and the electricity company, CFE). The rule was revised in 2009 to exclude PEMEX investment, and the target was moved from budget balance to a 2 percent of GDP deficit. While the fiscal rule helped reduce deficits, anchored macroeconomic stability, and proved flexible enough for a countercyclical response to the global financial crisis, it also had drawbacks. Expenditures increased rapidly during good years, while the rule did not limit borrowing by the broader public sector. In response to the first of these issues, an expenditure growth rule has recently been introduced. Under the rule, “structural current spending” growth (i.e., primary current spending less that governed by automatic rules such as pensions, electricity subsidies, and revenue-sharing transfers to state and local governments) cannot be higher than potential growth (which is estimated by the Secretary of Finance). A target for the broader public sector borrowing requirement has also been introduced under the FRL in addition to the budget balance.

Mongolia has a large and growing mineral sector, and fiscal revenues are expected to rise substantially. The country experienced a substantial decline in mineral revenues during 2007–09, which led to a crisis and exposed weaknesses in fiscal management (poor public investment planning, large untargeted social expenditures, and extreme neglect of infrastructure maintenance). Since the crisis, Mongolia has introduced a fiscal stability law (implemented in 2013) and a fiscal stability fund, and has undertaken complementary public financial management reforms. The fiscal stability law contains three fiscal rules: a ceiling on the structural fiscal deficit of 2 percent of GDP as of 2013; a cap on expenditure growth based on nonmineral GDP growth as of 2013; and a debt ceiling. Structural revenues are calculated as a moving average of major mineral prices, with the prices calculated over a 16-year period (12 previous years, the current year, and three future years, using price forecasts from the IMF and other internationally reputable financial institutions). The expenditure rule is linked to the growth of nonmineral GDP (the greater of the current year or the average over the past

12 years). The fiscal framework is supported by a stabilization fund—when mineral revenues exceed structural mineral revenues, the difference has to be placed in the stabilization fund, and when they fall short, the fund can be used to finance the deficit.

Norway established a new fiscal framework in 2001 to manage its oil revenues. The fiscal framework was designed to achieve four goals—macroeconomic stability, fiscal sustainability, intergenerational equity, and efficiency of resource use—and based on three institutional pillars—a structural fiscal rule, a sovereign wealth fund, and the full integration of that fund into the government budget. Net cash flows from oil and gas are transferred to the Global Government Pension Fund. The fiscal rule ties the non-oil fiscal deficit to the investment returns of the pension fund, with the average transfer made at an imputed 4 percent real return on investments. The rule is flexible, however, and additional transfers are allowed for countercyclical stabilization and expenditure smoothing. This means that transfers from the pension fund may be higher than expected returns during a downturn and lower during an upturn. The framework has seen a large build-up in assets. Nevertheless, there are still challenges. The pension fund is currently growing much faster than the economy, implying a steady fiscal stimulus. However, when oil and gas revenues start to decline, there will be lower inflows to finance future commitments.

Russia has a fiscal framework to manage its oil and gas revenues. The previous framework, which started in 2007 and had a long-term non-oil deficit target of 4.7 percent of GDP, was suspended in April 2009 due to the global financial crisis, and then formally abolished in 2012. Under a new framework approved in December 2012 and implemented in 2013, federal government expenditures are capped at benchmark oil revenues plus federal non-oil revenues (including privatization receipts) plus a net borrowing limit of 1 percent of GDP. Benchmark oil revenues are calculated according to a 10-year backward-looking oil price rule (a five-year average used in 2013 will gradually be increased to a 10-year average by 2018). When the oil price is above the benchmark price, the additional revenues are saved in the Oil Reserve Fund. When that fund reaches 7 percent of GDP, 50 percent of additional allocations are allotted to the National Wealth Fund and 50 percent to infrastructure projects. When oil prices are below the benchmark, the Oil Reserve Fund is tapped to maintain expenditures. If there is a prolonged decline in oil prices (the actual oil price is below the benchmark for the previous three years), the benchmark price is reset to equal the three-year backward-looking average. In any event, expenditures cannot be lower than what is legislated in the previous budget, which acts as a floor for federal expenditures.

Summary: Commodity-Exporting Countries

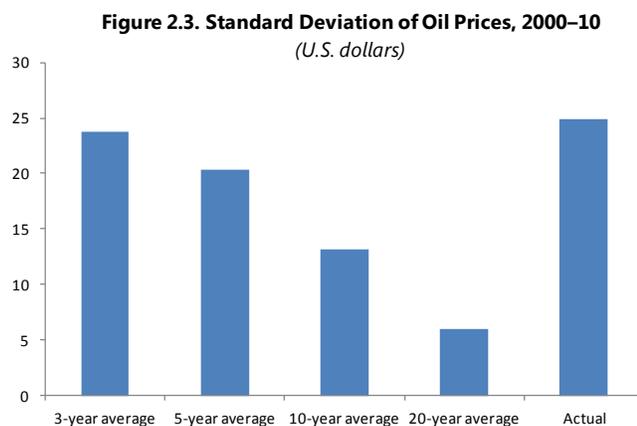
In sum, a reliance on commodity revenues imposes unique fiscal policy challenges in terms of how to handle the volatility and exhaustibility of the primary revenue source. These challenges have prompted significant policy innovation, and while no single model has emerged, the five countries discussed above have a number of common characteristics in terms of how their fiscal frameworks have evolved.

- First, there has been a general move toward a medium-term expenditure framework to improve the planning and efficiency of spending.
- Second, there has been experimentation with some form of fiscal anchor (structural fiscal balance rules, expenditure ceilings, or a combination of the two) that seeks to decouple expenditures from revenue volatility, although rigid rules have not worked.
- Third, the countries have established stabilization and sovereign wealth funds to provide resources to smooth expenditures in the face of revenue volatility and to save for future generations.

The country experiences highlight some of the specific design issues that need to be considered when implementing a fiscal anchor. What price information should be used to calculate

structural revenues? What should be the structural balance target? Should escape clauses be built in? What should be the level of coverage—central government or broader? In terms of price information, using a short backward-looking horizon tracks prices and picks turning points well, but generates more volatility in expenditures (Figure 2.3). A longer backward horizon results in smoother expenditure, but will systematically

undershoot or overshoot prices if the trend changes. Incorporating forward prices in theory is useful, but in practice futures prices are poor predictors of what will happen to prices going forward. Where a fiscal rule is used, countries have opted either for a long time horizon to calculate the price (Mongolia, Russia) or to assign a committee (Chile) to establish the price. The choice of the structural balance target is also important. A structural surplus means that there is an intention to accumulate resources for future generations.



Source: IMF staff estimates.

In terms of frameworks for managing natural resource wealth, countries have often opted for a fiscal stabilization fund to shield the budget from revenue uncertainty and volatility and to meet fiscal emergencies (such as responding to natural disasters), and for a sovereign wealth fund to address long-term demographic challenges (pensions, healthcare) and intergenerational equity considerations. This allows for investment strategies to be tailored to the different objectives of the funds, with the stabilization fund needing to be more liquid.

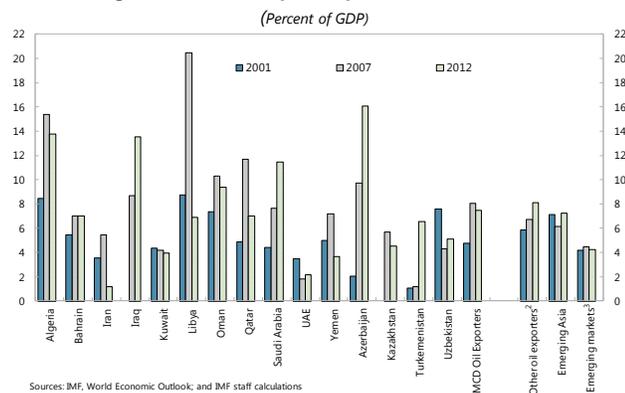
Public Investment Management in Oil-Exporting Countries

With fiscal policy being the main vehicle through which oil wealth is channeled into the domestic economy, it is important that public spending efficiently meet the country's development goals. As in

most other oil-exporting countries, high oil prices have facilitated higher public spending in Saudi Arabia, including on investment projects (Figure 2.4). Capital spending grew by 24 percent on average annually in nominal terms from 2000–08, increasing by about 3 percentage points of GDP, on the back of a prolonged period of high oil revenue. Saudi Arabia further boosted capital spending during the height of the global financial crisis in 2009 and through a fiscal stimulus package in 2011. Capital expenditure averaged over 11 percent of GDP between 2009 and 2013. In turn, the Saudi Arabian economy has grown strongly; during 2000–13, non-oil output growth averaged over 7 percent annually.

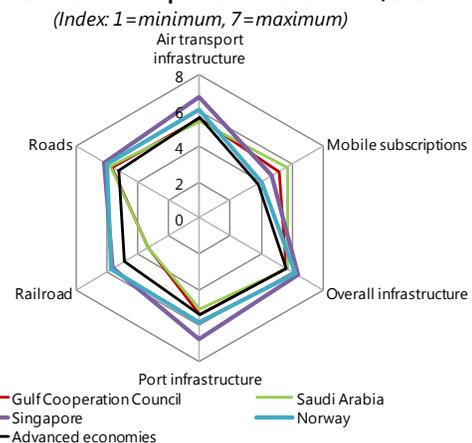
Large public investments in Saudi Arabia over the past decade have improved the quality of infrastructure as part of the government's strategy to diversify the economy. These investments have resulted in an

Figure 2.4. Public Capital Expenditure, 2001–12¹



Sources: IMF, World Economic Outlook; and IMF staff calculations.
¹ Refers to general government and excludes oil-related investment of public companies.
² Includes countries where the oil exports share in total exports is above 15 percent.
³ Emerging markets in IMF definition excludes China and MCD oil exporters.

Figure 2.5. World Competitiveness Indicators, 2013¹



Source: World Economic Forum, Global Competitiveness Index.
¹ Railroad score of GCC is set to that of Saudi Arabia due to lack of data for the other GCC countries. Mobile subscriptions scores are rescaled with a maximum of 7 relative to the highest score in advanced economies.

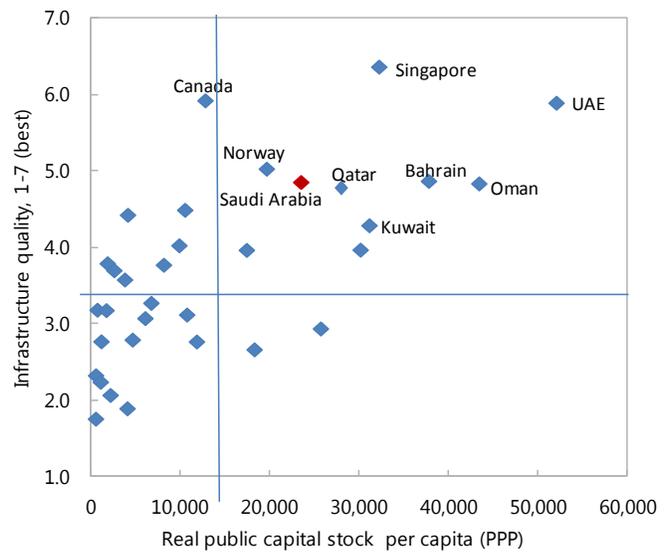
improved ranking for infrastructure quality in the World Economic Forum’s (WEF) Global Competitiveness Report from 41 in 2008/09 to 31 in 2013/14 (Figure 2.5). Saudi Arabia’s infrastructure quality is strong in the areas of roads and telecommunications, but weaker in railroads, ports, and airports, where a large number of investment projects are in progress.

A key question is whether the large public investments that have been made have been efficient. While this is difficult to answer, a comparison can be made of the estimated real public capital stock per capita and the infrastructure quality index (Figure 2.6). This suggests that Saudi Arabia compares quite favorably in terms of the investment/quality combination, although it appears less efficient than economies such as Canada, Norway, and Singapore.

The efficiency of public investment in Saudi Arabia can be assessed using two alternative techniques that measure countries’ effectiveness in transforming inputs (money) into outputs (infrastructure). Specifically, efficiency is measured using a Data Envelopment Analysis (DEA) and a Partial Free Disposal Hull (PFDH) (see Appendix 2.1).⁴

In the calculations, two alternative output measures are used: one is an infrastructure quality measure, approximated by using the infrastructure subcomponent of the WEF’s Global Competitiveness Indicators; the other is an infrastructural quantity index, constructed on the basis of data on telephone lines, electricity, and roads from the World Bank’s World

Figure 2.6. Public Capital Stocks and Infrastructure

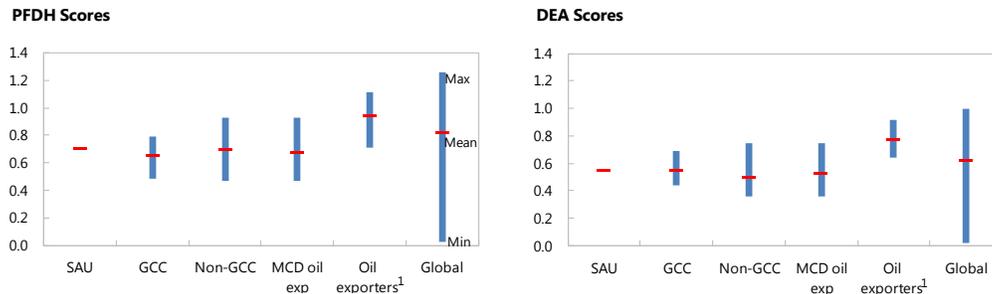


Sources: World Economic Forum, *Global Competitiveness Report*; and author’s calculations.

⁴ The main difference between these approaches is that the DEA compares each country against a fixed country sample, whereas the PFDH makes the comparison against repeated randomized subsamples, thus reducing sensitivity to outliers. Another important difference is that the PFDH allows for the presence of super-efficient countries that will be located beyond the production possibility frontier and have efficiency scores higher than one.

Development Indicators.⁵ Inputs are measured as the public capital stock, with GDP per capita used as a control variable (a two inputs-one output approach). A higher estimated score implies greater efficiency. For each of the two methods, final score estimates are the average of the two scores from the two alternative output measures. Both the PFDH and the DEA results show that Saudi Arabia’s score is near the global average score, but is lower than some advanced economies with strong institutions such as Canada, Chile, Norway, and Australia (Figure 2.7).

Figure 2.7. DEA and PFDH Scores



Source: IMF staff estimates.

¹Oil exporting countries with strong institutions as determined by high WGI indicators (90+) - Australia, Canada, Chile, and Norway.

Note: DEA = Data Envelopment Analysis; PFDH = Partial Free Disposal Hull; GCC = Gulf Cooperation Council; WGI = Worldwide Governance Indicators.

A Fiscal Reform Agenda for Saudi Arabia

The fiscal position in Saudi Arabia is very strong, with government debt virtually eliminated and substantial assets accumulated. From this position of strength, now is a good time to consider further reforms that will help the government meet its fiscal objectives in the period ahead. With respect to stabilization, Saudi Arabia has become more stable in the last two decades, but the volatility of macroeconomic outcomes continues to be above levels in advanced economies. Furthermore, recent expansions in fiscal spending risk overcommitting future budgets to high expenditure levels that might prove unsustainable in the face of a persistent negative oil price shock. This could jeopardize intergenerational equity and lead the government to undertake abrupt expenditure cuts to ensure sustainability, thus undermining the developmental objective of fiscal policy and exacerbating procyclicality. Finally, while public investment efficiency appears reasonable in Saudi Arabia, it remains below that of many countries, suggesting room for improvement. Increased efficiency would provide better resource allocation and complement the government’s goal of developing a more diversified economy.

The Saudi Arabian budget is put together using a top-down and a bottom-up approach. The

⁵ The index is constructed using the principle components procedure on data series of telephone lines (landlines), electricity production, and roads, expressed in per capita terms.

budget oil price is decided by a committee through a consultative process that includes the Ministry of Oil, Ministry of Economy and Planning, and Ministry of Finance (MoF). The annual budget by the Ministry of Finance follows a top-down procedure in which the economic assumptions, fiscal policies, and expenditure ceilings are determined by the Supreme Economic Council (top-down approach), while line ministries submit their expenditure plans to the MoF and negotiations between the MoF and the ministries ensure budgeted spending is kept within the overall spending envelope (bottom-up process). The three-year rolling ceiling on the government investment program acts as a limit on future capital commitments by line ministries. Carry-over of expenditures from one year to the next is limited to certain projects and categories of expenditures. The annual budget includes a contingency reserve, and procedures for transfers from this reserve are set out in the annual budget decree. The budget is announced in late December with the publication of a short statement that includes information on the broad revenue and expenditure parameters, but not an estimate of the previous year's budget outcome. A common chart of accounts and budget classification is being developed in accordance with the IMF's *Government Finance Statistics Manual 2001* together with the implementation of a new government financial management information system (GFMIS) to aid budget preparation and analysis.

Over the past decade, revenue and expenditure estimates in the budget have been conservative. Revenue and expenditure out-turns have exceeded budgeted amounts by substantial margins (Figure 2.8). This has been due in large part to conservative assumptions about oil prices and revenues and the subsequent spending of the additional revenues during the year. In turn, this has meant that the published budget has provided only a limited guide to the likely fiscal stance. While the government is not required to publish a supplementary budget, any increase or decrease in budget items during the year must be approved by the Council of Ministers.

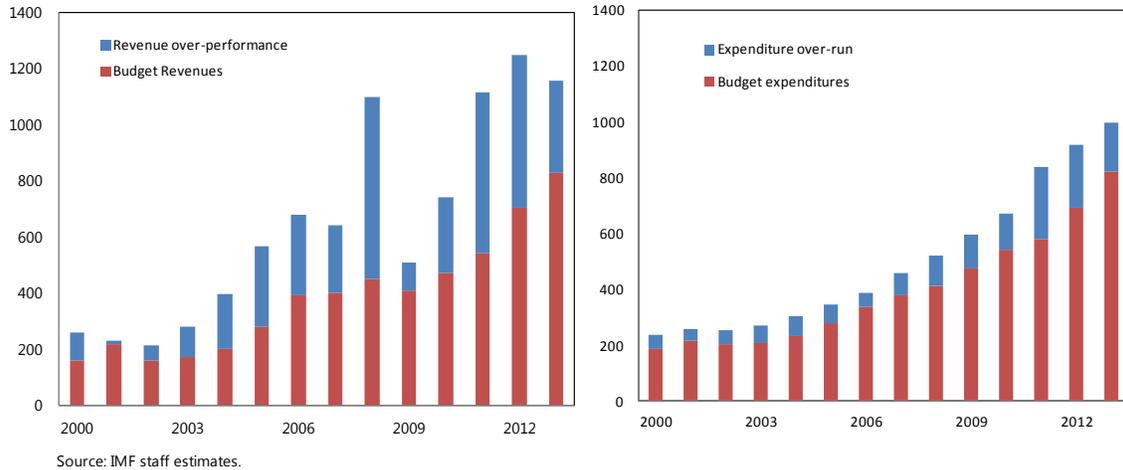
Given the objectives to further reduce volatility, improve the efficiency of public investment, and increasing savings for stabilization and equity purposes, three possible areas of reform could be considered: (i) introduction of a formal medium-term fiscal framework; (ii) establishment of a fiscal anchor; and (iii) evaluation of the public investment management process.

A Medium-Term Fiscal Framework

There would be benefits to Saudi Arabia setting its fiscal policy decisions within a broader medium-term framework to help secure the effective implementation of its fiscal policy objectives. This framework would include:

Figure 2.8. Total Revenues and Expenditures, 2000–12

(Billions of Saudi Arabian riyals)



- A medium-term fiscal framework that sets the overall quantitative fiscal objectives in terms of the balance and net worth for three to five years, and demonstrates the consistency of the government’s policies with those objectives given projected macroeconomic variables, oil prices, and demographics.
- A fiscal policy strategy document that translates the medium-term fiscal framework into a statement on medium-term fiscal policy priorities. This document could also contain fiscal risk analysis, indicating the sensitivity of fiscal plans to varying assumptions regarding the economy, contingent liabilities, or uncertain events.
- A medium-term budget framework setting out the government’s expenditure plans and objectives in multi-year perspective, and in line with available fiscal space. In the Saudi Arabian context, such a framework would provide the link between the five-year development plan and the annual budget.
- The annual budget, which remains the basis for legal appropriations of expenditure but should be consistent with all of the above.

The annual budget is the starting point for effective medium-term budgeting. At present, the budget is a relatively poor guide to actual fiscal outcomes because revenue and spending outcomes are typically far above the initial estimates. Extending the budget horizon to two or three years only makes sense if there is a reliable point of departure—i.e., a firm annual budget. From a technical point of view, this means that the MoF should include in the budget the best

possible estimates. Good estimates require a sound understanding of how parameters drive annual expenditure, but also involve making repeated comparisons between the budget and the actual budget execution out-turn—both in-year and soon after the end of the fiscal year. To reduce budget uncertainty, the authorities should: (i) strengthen the capacity to cost existing and new policies to ensure that the budget is an adequate reflection of expected costs; (ii) adhere more closely to the adopted budget even if oil prices turn out to be different from what was budgeted; and (iii) enhance fiscal reporting on in-year budget out-turns (frequency, timeliness, and analysis). Furthermore, while the use of lower-than-actual/expected oil prices in budget preparations provides policymakers with a useful buffer, using more realistic oil price assumptions would enhance policy planning and budget transparency.

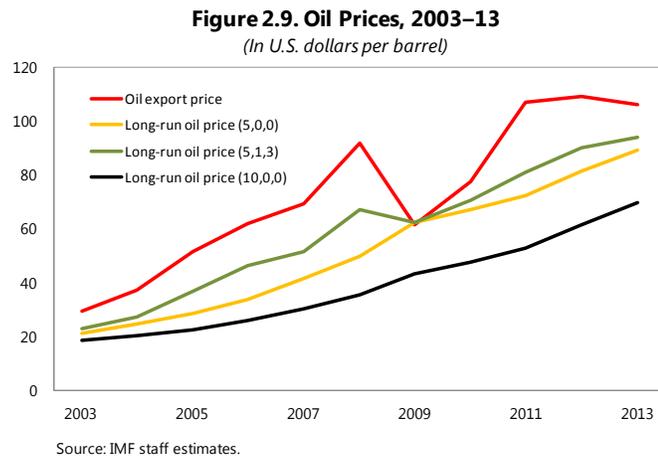
Developing a medium-term framework would enable policymakers to evaluate the sustainability of the budget. For example, it would allow for evaluation of the impact of a gradually growing expenditure mass—particularly if concentrated in current expenditures that are difficult to unwind—on the budget over the medium term. To enhance the predictability of spending decisions and assist the planning process, a goal could be that the five-year development plan be updated regularly and that these updates be linked to the annual budgets on a rolling basis.

Implementing a medium-term fiscal framework would need parallel efforts to enhance macroeconomic forecasting. A reliable assessment of how the economy will develop over the next couple of years is the basis for the decisions on what the right budget policies are and what the impact of those policies will be. The establishment of the macro-fiscal unit in the Ministry of Finance would help facilitate these changes as long as it is appropriately staffed.

A Fiscal Anchor

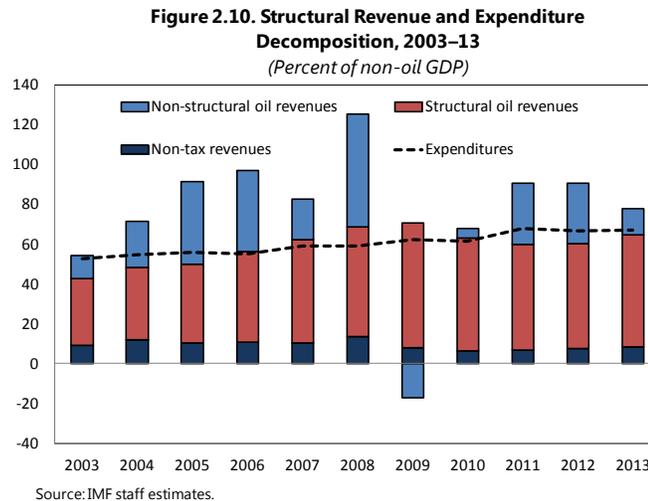
In terms of a formal fiscal anchor to support a medium-term budget framework, the balance of arguments is less clear. While a well-designed anchor can improve fiscal performance, help constrain expenditure pressures, and signal policy intentions, the Saudi fiscal track record has been good without an explicit fiscal rule. Further, Saudi Arabia has a fixed exchange rate, which means that fiscal policy is the primary macroeconomic policy tool. Consequently, retaining some fiscal policy discretion is warranted.

Nevertheless, there would be benefits to incorporating some of the elements of a structural budget rule as a policy guide to support the medium-term budget framework. Anchoring the framework on an estimate of structural revenues would delink expenditure decisions from revenue volatility and provide better guidance to line ministries when they are developing their medium-term expenditure plans. The expenditure envelope would be set according to the estimate of structural revenues and an overall target for the structural balance.



There are a number of design issues to consider, including the determination of the oil price to be used and the appropriate target for the structural fiscal balance. For the oil price, a five-year backward-looking price rule would strike a balance between having low volatility and adjusting within a reasonable timeframe to new market trends in the price (Figure 2.9). While

consideration could be given to using a longer backward-looking rule as in Mongolia and Russia, this could be overly conservative for Saudi Arabia given the already well-established fiscal buffers. On the output side, Saudi Arabia is one of the few countries with spare production capacity, and consideration would need to be given to how structural oil output would be determined. There is no country experience on how to do this, so a



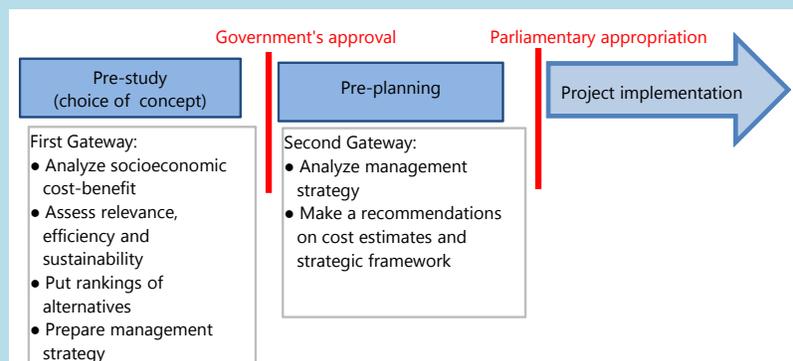
simple average of past output is likely the best option (Figure 2.10). In terms of the target for the structural balance, given that Saudi Arabia needs to save more for intergenerational equity purposes, a surplus target could be set in a way to generate sufficient savings to finance future government deficits when the country's oil reserve is exhausted.

Strengthening the Framework for Public Investment

A review of public investment management processes could improve public investment efficiency in Saudi Arabia. Given the large size of public projects, greater investment efficiency will provide better resource allocation and boost the growth dividend for the country's economy. The example of Norway (Box 2.1) illustrates the potential benefits of a strengthened public investment management process in terms of cost savings on projects. The first step would be a review of the public investment management process from appraisal and selection to implementation and ex-post evaluation to ensure that it is fully meeting the government's objectives.

Box 2.1. Norwegian Governance Framework for Public Investment Projects

The Ministry of Finance in Norway initiated the development of an obligatory Quality Assurance Scheme (QAS) as a governance framework in 2000. Following a series of unsuccessful major projects and repeated project overspending during the 1980 and 1990s, the

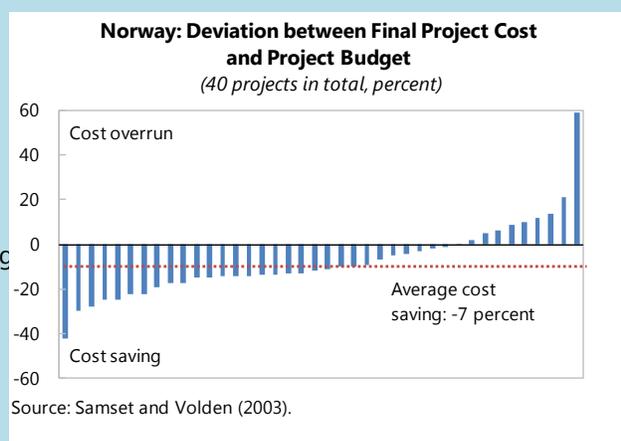


Ministry of Finance introduced a mandatory external assessment for all state-financed projects over US\$500 million. The goal was to ensure improved quality-at-entry by establishing a system in which politics and administration is well divided, with the interplay between these two sides well understood. The QAS was stipulated in the national budget law.

The two stages of the QAS help ensure that any project undergoes a comprehensive analysis before being approved. Measures are taken to ensure the quality of documentation (i) prior to the cabinet's decision regarding conceptual solution and (ii) prior to the Parliament's approval of the project's cost frame. The first "gateway" focuses on the rationale of the project, which covers the early choice of concept and strategy, the decision to initiate project pre-planning, and examination of many alternatives. The second "gateway" is undertaken by the end of the planning phase, before a formal submission is made to Parliament. It is documented in a report containing the consultant's advice on a cost frame for the project.

Evidence indicates that the QAS has had a positive effect with a remarkable cost savings. One study shows that 32 of the 40 projects submitted to QAS in the period 2000–09 and implemented during 2000–12, were completed within or below the cost frame (Samset and Volden 2003). The total net saving estimated at about 7 percent of the total investment, which represents notable progress compared with the 1990s.

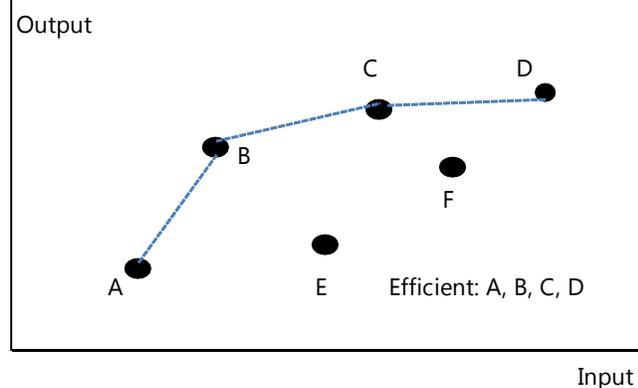
This two-stage process provides a tool for control from the top: Parliament–government–ministry–agency. In between the two stages, there are several coordination forums where the Ministry of Finance brings together key interested parties for discussions, often resulting in common understanding and definition of terms and professional standards. As of 2013, the scheme had been used for 160 projects.



Appendix 2.1. Data Envelope Analysis and Partial Free Disposal Hull as a Nonparametric Methodology

Efficiency is assessed using a cross-country approach that measures the effectiveness of spending in producing outcomes. The relative efficiency of spending inputs and outcomes in each country is assessed using a Data Envelopment Analysis (DEA) technique. Based on the assumption of a convex production possibilities set, an “efficiency frontier” is constructed as the linear combination of efficient input and output combinations in the cross-country sample. The term “envelopment” stems from the fact that the production frontier envelops the set of observations. Figure A2.1 illustrates an efficiency frontier that connects points A through D as these countries dominate other input-output pairs, such as countries E and F in the interior. The efficiency score is computed by measuring the distance between a country and the efficiency frontier, defined as a linear combination of the best practice observations.

Figure A2.1. Efficiency Frontier under the DEA Concept



Source: IMF staff estimates.

While DEA does not require an assumption about the empirical distribution of the efficiency term, the approach has some shortcomings. Thus, DEA is a powerful tool to assess spending efficiency. However, DEA as a nonparametric relative measure of efficiency is highly sensitive to sample selection and measurement error. As a result, outliers can exert a large effect on the efficiency scores and the shape of the frontier. For this reason, proper sample selection is critical to ensure that cross-country input-output bundles are comparable.

To deal with the issues of the sensitivity to measurement errors and outliers, the efficiency analysis can be supplemented by a partial frontier method. This method generalizes a Partial Free Disposal Hull (PFDH)—a nonconvex and staircase frontier—by adding a layer of randomness to the computation of the efficiency scores. Instead of benchmarking a country relative to the best-performing peer in the sample, the method compares each country against the best performer in a sample of peers that produce at least the same amount of output. The sample is randomly drawn with replacement.

References

Samset, Knut, and Gro Holst Volden. 2003. "Investing for Impact— Lessons with the Norwegian State Project Model and the First Investment Projects That Have Been Subjected to External Quality Assurance." Norwegian University of Science and Technology.

3

Monetary and Macroprudential Policies in Saudi Arabia

Naif Alghaith, Ahmed Al-Darwish, Pragyan Deb, and Padamja Khandelwal

Monetary policy in Saudi Arabia is anchored by the Saudi riyal's peg to the U.S. dollar. Fiscal policy is therefore the primary macroeconomic management tool. However, there is a complementary role for liquidity management operations and macroprudential policy in macroeconomic and financial sector management. The Saudi Arabian Monetary Agency (SAMA) is currently developing its toolkit to manage liquidity. There is scope to reduce the volatility of the monetary base by implementing a formal liquidity forecasting framework and by taking steps to help strengthen the monetary policy transmission mechanism. Use of the macroprudential policy toolkit to manage systemic risk in Saudi Arabia would benefit if a formal macroprudential framework were set up, with SAMA as the designated authority and with publication of early warning indicators and risk assessments.

Monetary Policy in Saudi Arabia

Commodity price volatility in resource-rich countries poses significant challenges to policymakers. There is considerable volatility associated with conditions in global commodity markets, and swings in a commodity exporter's terms of trade often spill over to the rest of the economy. When commodity prices rise, higher revenues often lead to a strengthening of the external balance and an increase in government spending, boosting activity in the noncommodity sector of the economy. With the influx of liquidity, credit and asset prices are likely to move closely with the commodity price cycle, and consumer and business confidence are likely to increase. When commodity prices drop, this cycle quickly reverses, putting particular stress on borrowers and financial institutions that have become overexposed during the upswing. While the cycles may be driven largely by exogenous factors, domestic policies play an important role in managing their impact.

Saudi Arabia is among the world's largest oil exporters and is highly dependent on oil exports. In this context, it is useful to note key elements of the policy framework at the outset:

- Monetary policy in Saudi Arabia is anchored by the Saudi riyal's peg to the U.S. dollar. The peg—which has been in place for nearly three decades—provides credibility to monetary policy and stability to trade, income flows, and financial assets. However, the peg also means that Saudi Arabia has limited flexibility in monetary policy, as short-term policy interest rates closely follow U.S. Federal Reserve interest rates.
- In the absence of an independent interest rate policy, the authorities use a mix of fiscal policy, liquidity management operations, and macroprudential regulations to influence economic activity and manage financial sector risks. While the credibility of the exchange rate peg helps anchor price expectations over the long term, fiscal policy has the primary responsibility for managing aggregate demand and minimizing volatility. Indeed, fiscal policy played a countercyclical role in the global financial crisis. However, fiscal policy is not always flexible enough to prevent credit booms and the buildup of systemic risk in the financial sector. There is, therefore, a complementary role for liquidity management operations and macroprudential policy.

Strong policy frameworks will help Saudi Arabia prepare for any potential challenges stemming from developments in the domestic and global economy. For example, Saudi Arabia will need to manage the effects of tapering of unconventional monetary policy in the United States. Meanwhile, financial deepening is increasing, and trade has contributed to more business-cycle synchronization with developing Asia rather than the United States. Coupled with the authorities' plans to diversify the economy, these recent trends suggest an increasing relevance of monetary and macroprudential policies.

International Comparison of Monetary Policy Frameworks in Commodity Exporters

There is considerable heterogeneity in monetary policy frameworks across commodity exporters. Table 3.1 presents the monetary and exchange rate policy framework in Saudi Arabia, other Gulf Cooperation Council (GCC) countries, and 13 other commodity-exporting, high-income, and emerging market economies. All GCC countries, including Saudi Arabia, have conventional exchange rate pegs (all to the U.S. dollar, except Kuwait) and lack an independent interest rate policy. In contrast to the GCC, only six of the comparator countries (Algeria, Azerbaijan, Brunei, Indonesia, Kazakhstan, and Trinidad and Tobago) employ the exchange rate as the nominal anchor. Three of these (Azerbaijan, Brunei, and Trinidad and Tobago) have limited exchange rate flexibility in the form of a currency board or stabilized exchange rate.

Table 3.1. Monetary and Exchange Rate Policy Framework of Selected Commodity Exporters, end-April 2013

	Hydrocarbon exports (in percent of total, 2013)	Monetary Policy Framework			De Facto Classification of Exchange Rate Arrangement						
		Exchange rate anchor	Inflation targeting	Other ¹	Currency board	Conventional peg	Stabilized arrangement	Crawl-like arrangement	Other managed arrangement	Floating	Free floating
Bahrain	58.7	USD				✓					
Kuwait	58.2	Basket				✓					
Oman	45.2	USD				✓					
Qatar	54.5	USD				✓					
Saudi Arabia	44.4	USD				✓					
United Arab Emirates	30.0	USD				✓					
Algeria	31.7	Basket							✓		
Azerbaijan ²	36.6			✓			✓				
Brunei Darussalam	71.1	Singapore dollar			✓						
Canada	5.9			✓							✓
Chile	...			✓							✓
Indonesia ²	2.0			✓				✓			
Kazakhstan	25.7	USD						✓			
Malaysia	8.8			✓					✓		
Mexico	3.7			✓							✓
Norway	9.7			✓							✓
Russia ³	13.3			✓					✓		
South Africa	...			✓						✓	
Trinidad and Tobago	15.7	USD						✓			

Sources: IMF, *World Economic Outlook* and *Annual Report on Exchange Arrangements and Exchange Restrictions, 2013*.

¹Includes countries that have no explicitly stated nominal anchor but rather monitor various indicators in conducting monetary policy.

²The country maintains a de facto exchange rate anchor to the U.S. dollar.

³The central bank has taken preliminary steps towards inflation targeting.

Other countries allow greater exchange rate flexibility. Algeria, Indonesia, and Kazakhstan have crawl-like or managed exchange rate arrangements, while five countries have floating exchange rates and target inflation. On average, countries with more diversified exports have a more flexible exchange rate regime.

No single policy framework is associated with better macroeconomic outcomes among commodity exporters over the past decade. Table 3.2 presents some key variables to assess macroeconomic performance and stability across commodity exporters. GCC countries, including Saudi Arabia, have mostly achieved high growth rates accompanied by low inflation. Kuwait, Qatar, and the United Arab Emirates have experienced higher growth volatility and inflation than other GCC countries. Among the non-GCC commodity-exporting countries with greater exchange rate flexibility, several performed worse than Saudi Arabia in terms of growth, volatility, and inflation. Only Malaysia and Chile performed at a comparable level to Saudi Arabia. Of course, it is important to acknowledge that growth potential may be lower in several countries, especially advanced economies (e.g., Canada and Norway). Additionally, growth in Saudi Arabia may be strong owing to rapid growth in fiscal expenditure. Saudi Arabia's success in this regard is in part attributable to flexible labor markets and energy subsidies that are likely to have played a role in mitigating macroeconomic volatility and the risk of Dutch disease.

Table 3.2. Macroeconomic Performance in Selected Commodity Exporters

	GDP Growth	Volatility of GDP Growth ¹	Inflation	Real Gov't Expenditure Growth ²	Current Account Balance
Bahrain	5.5	1.7	1.6	10.4	7.9
Kuwait	4.7	6.0	3.2	10.0	32.9
Oman	4.9	2.9	2.8	10.3	9.4
Qatar	11.9	6.6	4.4	14.9	21.6
Saudi Arabia	5.2	2.8	2.2	10.1	16.9
United Arab Emirates	4.7	4.3	4.3	7.2	9.7
GCC average	6.1	4.1	3.1	10.5	16.4
Algeria	3.7	1.6	3.9	10.7	12.5
Azerbaijan	11.3	10.1	6.5	21.3	8.6
Brunei Darussalam	1.6	2.0	0.7	4.0	44.6
Canada	2.2	1.7	2.0	2.5	-0.1
Chile	4.4	2.0	3.2	6.3	-0.1
Indonesia	5.3	0.9	7.6	9.6	1.4
Kazakhstan	7.9	3.3	8.5	13.2	-0.2
Malaysia	5.0	2.6	2.2	7.5	11.4
Mexico	2.3	2.7	4.8	4.0	-1.3
Norway	1.7	1.4	1.9	4.0	13.7
Russia	4.9	4.3	11.9	8.2	7.7
South Africa	3.4	1.8	5.9	6.4	-3.5
Trinidad and Tobago	4.6	5.5	6.7	5.5	15.0
Non-GCC average	4.5	3.1	5.1	7.9	8.4

Source: IMF, *World Economic Outlook*.

¹ Computed as the standard deviation of growth.

² Growth rate of general government expenditure deflated by Consumer Price Index; Data for Mexico and Trinidad and Tobago does not include net acquisition of non-financial assets.

Note: GCC = Gulf Cooperation Council.

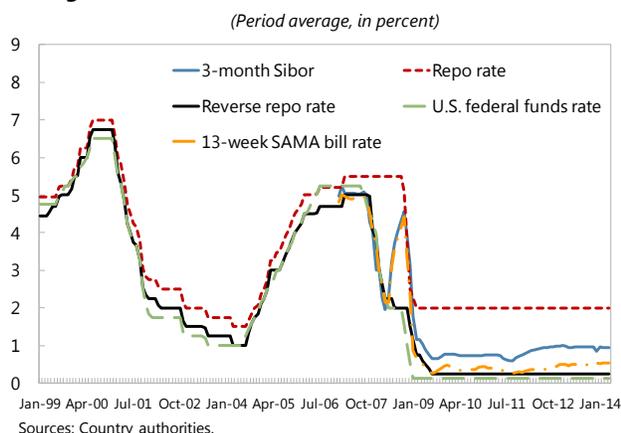
The Monetary Policy Toolkit in Saudi Arabia

SAMA's policy interest rates closely track U.S. short-term interest rates. The central bank sets an interest rate corridor using a repo rate (ceiling) and reverse repo rate (floor).

Short-term interest rates in Saudi Arabia, including the Saudi Inter-Bank Offered Rate (SIBOR) and the SAMA bill rates (for maturities ranging from one week to one year), fluctuate within this corridor.⁶

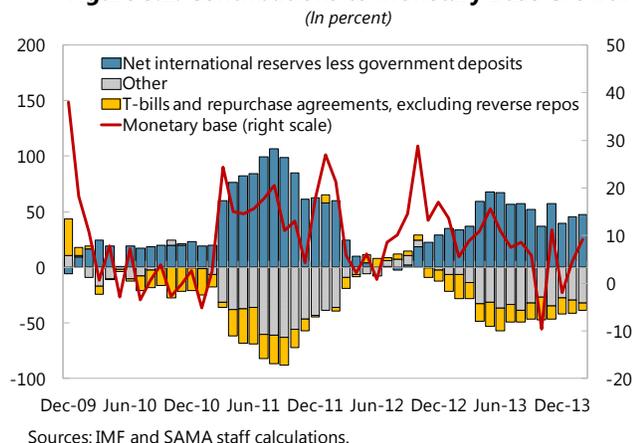
The interest rate corridor is set to closely track short-term interest rates in the U.S. (Figure 3.1; see also Espinoza and Prasad, 2012).⁷

Figure 3.1. Interest Rates in Saudi Arabia, 1999–2014



Large external surpluses and fiscal spending fuel a liquidity surplus in the banking system.⁸ An examination of the factors driving growth in the monetary base shows that government spending and repayment of government debt (proxied by net international reserves less government deposits) have been the main contributors (Figure 3.2). Banks hold large excess deposits at SAMA in

Figure 3.2. Contributions to Monetary Base Growth



⁶ SAMA bills were previously known as Treasury bills.

⁷ In line with the impossible trinity concept, a country can choose only two of the following three attributes: a fixed exchange rate, an open capital account, and an independent monetary policy. The Saudi riyal's exchange rate peg to the U.S. dollar and relatively open capital account imply that the interest rates track the U.S. rates fairly closely.

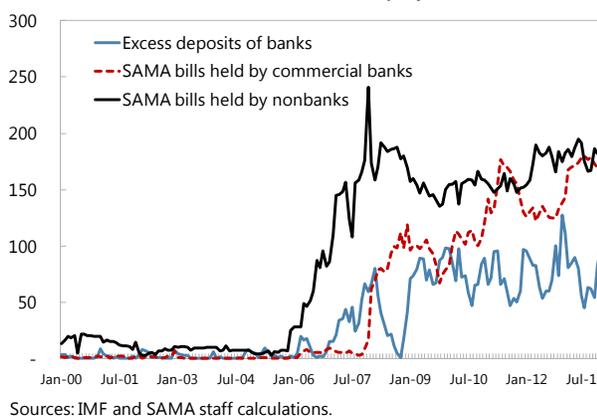
⁸ Banking system liquidity is defined narrowly as the monetary base, and is the sum of currency outside banks and bank reserves. The liquidity surplus in the banking system is defined as excess reserves (i.e., commercial bank holdings of cash and deposits at SAMA in excess of statutory requirements).

the form of reverse repos, which creates room for credit expansion.⁹

Lacking the ability to set policy interest rates independently, SAMA has been developing other tools to manage liquidity and influence credit conditions:

- Reserve requirements are SAMA's most powerful tool to control liquidity. Banks are required to maintain cash reserves of 7 percent of demand deposits and 4 percent of time and saving deposits. Additionally, banks hold 20 percent of their deposits in the form of short-term assets to meet statutory liquidity requirements. The cash reserve requirements have been changed infrequently and were last adjusted during the global financial crisis.¹⁰
- Repo transactions help manage domestic liquidity by injecting or absorbing overnight liquidity from the banking system. Eligible collateral includes government and SAMA securities. Repo operations increased significantly during the global financial crisis but have dropped to normal

Figure 3.3. Liquidity Management by SAMA
(Billions of SAR not seasonally adjusted)



⁹ Commercial banks place a significant amount in overnight deposits at SAMA to earn the reverse repo interest rate (currently at 0.25 percent). These reverse repo transactions are uncollateralized. The overnight deposits thus placed are considered as part of excess reserves of banks and are included in the monetary base. As a result, while reverse repo transactions imply that bank excess reserves are remunerated, they do not impact banking system liquidity.

¹⁰ Reserve requirements can be used both as a monetary policy tool and a macroprudential tool. As a monetary policy tool, reserve requirements are often set at moderate to low levels and generally imposed uniformly. The objective is to affect the level of interest rates and credit through the liquidity channel. In contrast, reserve requirements as a macroprudential tool can be used to (i) protect against liquidity risks and (ii) address risks associated with excess credit growth. They can be raised to very high levels and also used countercyclically to help support credit growth in financial downturns. They are often targeted and differentiated by currency, maturity, and types of liabilities, and can be applied on the stock of liabilities or on a marginal basis on new liabilities. For instance, in January 2008, Peru implemented higher reserve requirements on foreign currency and nonresident deposits to discourage short-term capital inflows.

levels since 2010. Currently, the repo rate is 2 percent. This rate has remained unchanged since early 2009.

SAMA bills are issued to banks and nonbanks to absorb excess liquidity (Figure 3.3). There is a ceiling on the weekly issuance of SAMA bills to banks that is revised infrequently (the last revision was in February 2010). The current ceiling on weekly issuance is SAR 9 billion and maturities range between 1 and 52 weeks. SAMA sets the interest rate on SAMA bills administratively at 80 percent of the Saudi Inter-Bank Bid (SIBID) rate for the corresponding maturity in order to encourage transactions in the inter-bank market and reflect the lower risk of SAMA securities. Banks decide the amount of SAMA bills they purchase, with bids being prorated by maturity, and across banks in the event of oversubscription. SAMA bill issuance to nonbanks is on an ad hoc basis and is not included in the ceiling on weekly issuance. Despite the ceiling on weekly issuances, SAMA bill issuances are not consistently oversubscribed at present.

- Foreign exchange swaps are used to provide liquidity and absorb shocks stemming from the foreign exchange market. Swaps are similar to repo transactions in securities and have been used to provide the banking system with foreign exchange liquidity when the currency has come under speculative pressures. For instance, in the 1990s the riyal came under selling pressure in 1993 and 1998 due to falling oil prices. At these times, intervention in the forward market helped alleviate market pressures.
- Placement of public funds is a complementary instrument to the day-to-day liquidity management through repos, issuance of SAMA bills, and foreign exchange swaps. If there is a shortage of liquidity in the system, SAMA may place deposits on behalf of autonomous government institutions with banks. Conversely, if there is an abundance of liquidity in the system, SAMA may withdraw the deposits placed with banks on behalf of the autonomous government institutions.

Stepped up issuance of SAMA bills has helped sterilize a significant part of the growth in surplus liquidity since 2009. The outstanding stock of SAMA bills has seen a significant increase in recent years as the weekly issuance has been increased to withdraw liquidity. However, the monetary base is volatile, suggesting scope to improve liquidity management. Forecasting the liquidity needs of the banking system can help guide the size and timing of liquidity operations, reduce excess liquidity, smooth the availability of credit, and strengthen the monetary transmission mechanism.

Empirical Analysis of Monetary Policy Transmission

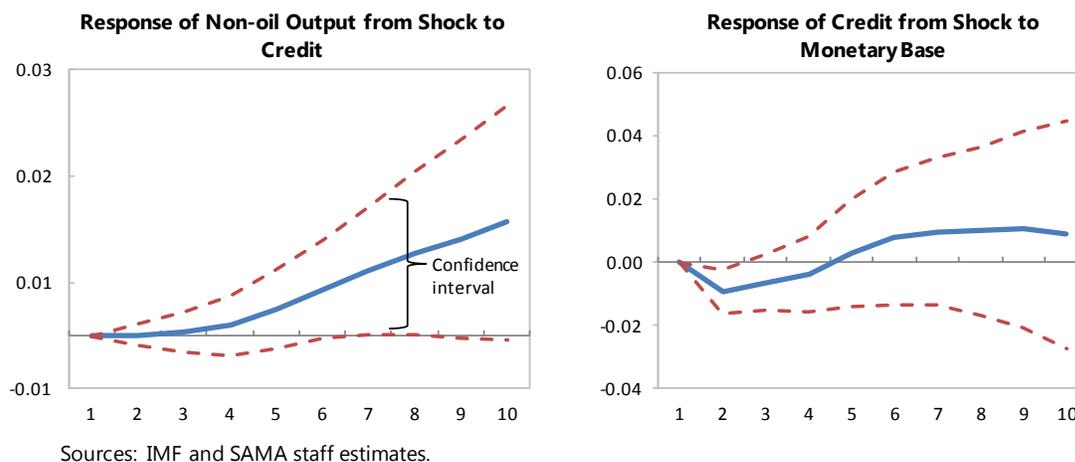
Empirical analysis can help identify the channels of monetary transmission. Four channels through which monetary policy affects aggregate demand are often considered in the literature: the interest rate channel, the credit channel, the exchange rate channel, and the asset price channel. Monetary policy is considered to have an impact on the cost of credit through the interest rate channel, whereas the credit channel affects the availability of credit through the supply of bank reserves. Monetary policy also influences the exchange rate and asset prices—changes in the former can affect external demand, while the latter affects demand through wealth effects. The exchange rate channel is inactive in Saudi Arabia owing to the fixed exchange rate regime, while analysis of the asset price channel data is hampered by a lack of data on real estate prices. Thus, this analysis takes an approach similar to that of Espinoza and Prasad (2012) and models the interest rate and credit channels of monetary transmission. A key innovation in our analysis is that the transmission of shocks from the monetary base to economic activity through the credit channel is examined. In the empirical analysis, two model specifications are considered as a robustness check to support the validity of the results. The details of the empirical specification can be found in Appendix 3.1.

The main results of the analysis are summarized as follows:

- Interest rates are not found to have a significant impact on economic activity. Results suggest that an increase in the U.S. federal funds rate has a significant negative impact on prices in Saudi Arabia, but the impact on non-oil output is found to be small and statistically insignificant.¹¹ One explanation for the lack of impact from interest rates to output may be that often the rising U.S. interest rate is accompanied by strong growth and rising oil prices, which may offset a negative impact. An alternative explanation may be the presence of excess liquidity in the banking system, which may weaken the monetary transmission of shocks to policy interest rates.
- There is strong evidence that the credit channel is active in Saudi Arabia. Impulse response functions across two different specifications indicate that a one standard deviation shock to credit has a positive and statistically significant impact on non-oil output after seven quarters (Figure 3.4). The point estimates of the output response suggest an elasticity ranging between 0.6 and 0.7 after seven quarters.

¹¹ Similar results are found by replacing the U.S. federal funds rate with SIBOR in the empirical model. SIBOR closely tracks the U.S. federal funds rate, so only one of the two rates can be included in the analysis at a time.

Figure 3.4. Saudi Arabia: Impulse Responses from a Cholesky 1 Standard Deviation Shock



- There is weak evidence in support of an economic impact from shocks to the monetary base. Impulse responses of non-oil output and prices to a monetary base shock are statistically significant in only one of the two specifications. However, the two different empirical specifications yield directionally similar and consistent results.
- An increase in global oil prices increases government spending in Saudi Arabia. The impact of an increase in oil prices on government spending is positive and significant after three quarters.
- An increase in the Consumer Price Index of partner countries increases prices in Saudi Arabia. Estimates imply an elasticity of Saudi prices to partner countries' prices of nearly 0.6 after six months. This is due to the large weight of imported goods in the consumption basket.
- An increase in U.S. GDP is found to have a positive and statistically significant impact on Saudi non-oil output. This likely reflects the impact of U.S. GDP on global oil demand, and consequently, oil prices and government spending.

These results suggest that a normalization of U.S. monetary policy is unlikely to have an adverse growth impact on Saudi Arabia, especially if driven by an improving U.S. economy. This is derived from the lack of an adverse impact of an increase in the U.S. federal funds rate on Saudi non-oil output and a positive impact from U.S. GDP. However, these results do not rule out an adverse impact on oil prices from surges in global financial market volatility related to premature normalization of U.S. monetary policy. In this scenario, fiscal policy has the space to respond to slowing growth given substantial buffers, while SAMA could provide liquidity to the financial system as needed.

In line with international experience, the surplus liquidity in the banking system may hamper monetary transmission. The lack of strong empirical evidence in support of the transmission of monetary shocks (interest rates and the monetary base) to economic activity and prices is not surprising, because bank liquidity has not been a constraining factor in the supply of credit (Saxegaard, 2006). With weak monetary transmission and interest rates that track U.S. rates, SAMA has limited ability to influence aggregate demand through the provision of additional reserves. Going forward, if oil prices moderate and result in reduced surplus liquidity, the monetary policy transmission may improve such that SAMA may be able to influence economic outcomes more actively through its liquidity management operations.

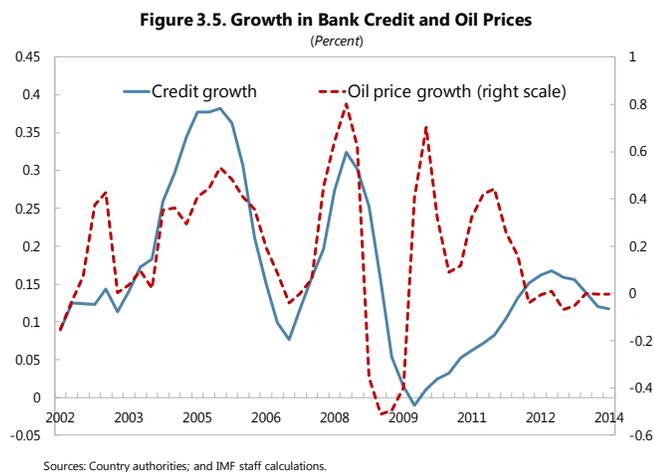
Macroprudential Policy in Saudi Arabia

In addition to implementing the Basel III capital and liquidity requirements, SAMA has used a wide variety of macroprudential instruments, including:

- Capital tools: leverage ratio and provision requirements.
- Liquidity tools: loan-to-deposit ratio, liquid-asset-to-deposit ratio.
- Sectoral tools: loan-to-value (LTV) ratio, debt-to-income ratio (DTI), and concentration limits.
- Exposure limits: large exposures.

During the last decade, SAMA has used a number of macroprudential tools to smooth credit growth. Banks have been encouraged to provision in a countercyclical way and provisioning levels increased to over 150 percent of gross nonperforming loans by end-2013. However SAMA's countercyclical provisions are part of the supervisory

process and are done on a bilateral basis with individual banks, based on microprudential concerns such as operating performance, composition of assets, and riskiness of the loan portfolio. Other instruments have been introduced to limit the build-up of risks, but they have been adjusted infrequently. For example, the DTI ratio was introduced at the end of 2005 to limit consumer credit and contain the buildup of household debt. However, since its introduction, it has not been adjusted. Similarly, it can be argued that the implementation of



Basel III capital requirements in 2012 played a part in moderating credit growth in 2013, although implementation was not a direct response to developments in the credit market. Despite these measures, credit developments have been closely linked to developments in oil prices (Figure 3.5).

Comparison of Saudi Macprudential Policy with Other Commodity Exporters

The macroprudential toolkit in Saudi Arabia is comparable to other commodity exporters in terms of the macroprudential tools that have been used. Table 3.3 shows that SAMA has used most of the capital, liquidity, and sectoral tools that are popular with other commodity exporters. However, Saudi Arabia does not have caps on currency lending or foreign exchange positions, which are common among GCC countries as well as other commodity-exporting countries.¹² Furthermore, Saudi Arabia does not explicitly limit real estate and other sectoral exposures, although SAMA does monitor such exposure of each bank as part of its routine surveillance process and imposes a loan-to-value ratio of 70 percent for real estate finance companies.

Table 3.3. Macroprudential Toolkit of Selected Commodity Exporters, 2013

	Capital Tools		Liquidity Tools			Sectoral Tools				Exposure Limits			
	Leverage Ratio	Dynamic Provisions	Loan-to-Deposit Ratio	Liquidity Requirements	Asset Maintenance Ratio	Concentration Limit	Loan-to-Value Ratio	Debt to Income Ratio	Sectoral Capital Buffers	Limits on Domestic Currency Loans	Foreign Exchange & Currency	Real Estate	Interbank
Saudi Arabia	√	●	√	√		√	√	√					
Bahrain	√		√	√		○		√				√	
Kuwait				√		√		●	●		√		
Oman			√	√		√	√				√	√	
Qatar			√	√		√	√	√			√	√	
United Arab Emirates			√	√		√		√				√	√
Algeria				●		√	●	●			●		
Azerbaijan	●			●		●					√		
Brunei Darussalam					●	√	√	√	√				
Canada				●		√	●	●					√
Chile	√			√		√	○	√			√		√
Indonesia	○		●			√	√				√		
Kazakhstan		●		√							√		
Malaysia							●		√	●			
Mexico						√	●				√		
Norway						○	●	●			√		
Russia				○		√		●	√		√		
South Africa	√			√							○		
Trinidad and Tobago	√			√		●	√						√

Sources: IMF staff; and country authorities.

Note: √ Not used countercyclically ● Used countercyclically ○ Tightened over time, but not intended as a countercyclical tool

¹² Saudi Arabia requires banks to obtain approval before commencing foreign exchange operations.

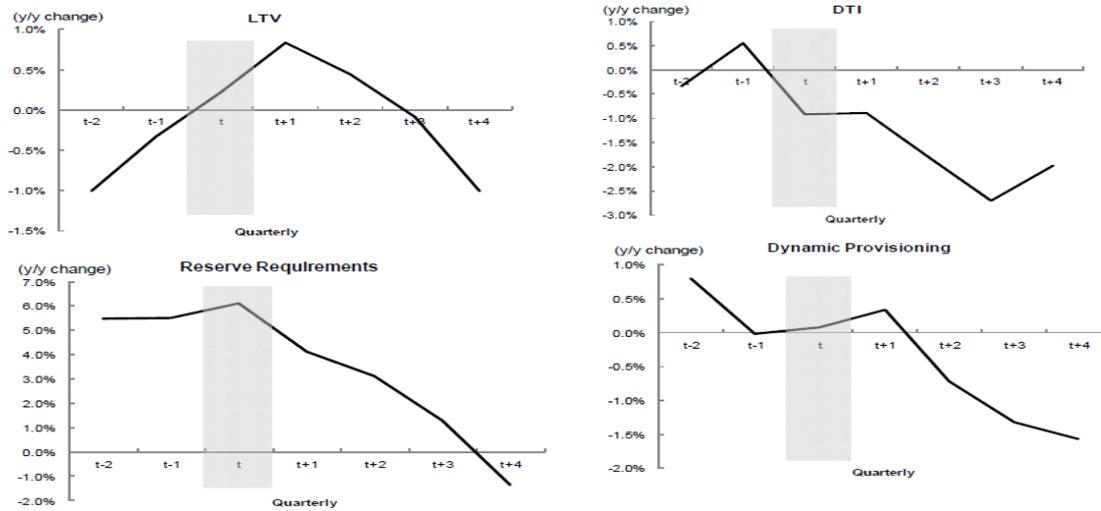
Resource-rich countries are increasingly adopting countercyclical macroprudential policies to influence macroeconomic outcomes. The stance of macroprudential policy is explicitly linked to macroeconomic developments such as credit growth, real estate prices, levels of household and corporate indebtedness, etc. Table 3.3 shows that sectoral tools such as concentration limits and LTV and DTI ratios are the most popular, followed by liquidity and capital measures. Sectoral tools can be used to target risks emanating from specific sectors of the economy without affecting the wider economy. For example, if risks are limited to the real estate sector, sectoral tools such as LTV and DTI ratios may be more appropriate than capital and liquidity tools, since the sectoral tools can more effectively slow down lending to the real estate sector without affecting credit to the wider economy. Algeria, Azerbaijan, Canada, Chile, Malaysia, and Norway have used LTV and DTI ratios in a countercyclical way to contain credit. Mexico is planning to do the same in the near future. Algeria, Azerbaijan, and Canada have used liquidity requirements countercyclically, while Indonesia has a countercyclical loan-to-deposit ratio. Kazakhstan has introduced dynamic provisioning. Within the GCC, Kuwait used sectoral capital buffers and DTI ratios to curtail retail lending in 2008.

Effectiveness of Countercyclical Macroprudential Policy

A growing body of academic literature suggests that macroprudential policy can be effectively used in a countercyclical manner to influence economic activity and manage financial sector risk. Table 3.4 provides an overview of the empirical literature on the effectiveness of countercyclical macroprudential policy. For example, drawing on a sample of 49 countries that have actively applied macroprudential instruments, Lim and others (2011) assess the effectiveness of macroprudential instruments by examining the performance of the target (risk) variables before and after the use of the macroprudential policy instrument. They find that caps on LTV and DTI ratios, dynamic provisioning, and reserve requirements are effective in curtailing credit growth (Figure 3.6) and, to a lesser extent, asset price inflation.

Figure 3.6. Change in Credit Growth After the Introduction of Instruments

(Percent)



Sources: Lim and others (2011); and IMF, International Financial Statistics.

Note: Lines denote average of sample countries' y/y (year-over-year) growth in credit (detrended). "t" denotes the time of the introduction of instruments; LTV = loan-to-value ratio; DTI = debt-to-income ratio.

Table 3.4. Summary of Literature Findings on Effectiveness of Macroprudential Tools

Reference	Instruments	Methodology	Conclusion
<i>Cross-country analysis</i>			
Arregui and others (2013)	LTV, DTI, risk weights, reserve requirement, provisioning requirement	Dynamic panel regression on 38 countries based on Krznar and others (2013) data (2000-11) (see Table X)	LTV, DTI, risk weights, reserve requirement effective in containing credit (to GDP) and house price growth; reserve requirement associated with leakages
Ahuja and Nabar (2011)	LTV, DTI	Dynamic panel regression on the 2010 IMF Survey data (2000-10)	LTV caps tend to have a decelerating effect on property price growth. LTVs and DTIs slow property lending growth
Almeida, Campello, Liu (2005)	LTV	Panel regression of house price growth and mortgage credit growth on a sample of 26 countries over the 1970-99 period.	New mortgage borrowings are more sensitive to aggregate income shocks in countries with higher LTVs; house price more sensitive to income shocks in countries with higher LTVs
Dell'Ariccia and others (2012)	Differential treatment of deposit accounts, reserve requirements, liquidity requirements, interest rate controls, credit controls, open foreign exchange position limits	Panel regression with a composite measure of the six instruments	Reduce the incidence of credit booms and decrease the probability that booms end up badly
IMF (2012), Board paper on interaction between monetary and macroprudential policy	LTV, DTI, risk weights, reserve requirement, provisioning requirement	Dynamic panel regression on 38 countries based on Krznar and others (2013) data (2000-11) (see Table X)	LTV, DTI, risk weights, reserve requirement effective in containing credit and house price growth
Kuttner and Shim (2012)	LTVs, DTIs, risk weights on mortgage loans, provisioning rules, exposure limits to the property sector, reserve requirement, capital gains tax at the time of sale of properties and stamp duties	Panel regressions of housing price growth and housing credit growth on a sample of 57 countries (1980-10)	LTV and DTI effective in curbing mortgage credit and house price growth
Lim and others (2011)	LTVs, DTIs, ceiling on credit growth, reserve requirement, capital requirement, provisioning requirement	Dynamic panel regression on the 2010 IMF Survey data (2000-10)	Reduce procyclicality of credit growth
Tovar and others (2012)	Reserve requirement, dynamic provisioning, capital requirement etc.	Dynamic panel data vector autoregression on 5 Latin American countries (Brazil, Chile, Colombia, Mexico and Peru) during 2003-11; Macroprudential measures are captured through a cumulative dummy	Average reserve requirements and a composite of other types of macroprudential policies had a moderate and transitory effect on credit growth
Vandenbussche and others (2012)	Major prudential measures grouped into 29 categories	Error correction model on 16 Central, Eastern and Southeastern Europe from the late 1990s or early 2000s to end-2010	Changes in the minimum capital requirement and non-standard liquidity measures (marginal reserve requirements on foreign funding, marginal reserve requirements linked to credit growth) have impact on housing price inflation.
Wong and others (2011)	LTV	Panel regression data from 13 economies	Reduce the sensitivity of mortgage default risk to property price shocks; Tightening LTV caps in general would reduce household leverage
<i>Individual-country analysis</i>			
Ahuja and Nabar (2011), Hong Kong	LTV	VAR model	LTV has small effect on credit. LTV tightening could affect property activity through the expectations channel rather than through the credit channel
Craig and Hua (2011), Hong Kong	LTVs and stamp duties on property transactions	Error-correction model of house price growth	Helped slow down property price inflation.
Galac (2010), Croatia	Credit growth ceiling, marginal reserve requirement, foreign currency liquidity reserve	Regression of total private credit	Credit growth ceiling reduced domestic private but not total private sector credit growth (as domestic corporate debt was substituted with foreign). Marginal reserve requirement useful for building capital buffers.
Igan and Kang (2011), South Korea	LTV, DTI	Regression of mortgage credit growth and house price growth on their determinants and dummy variable representing macroprudential policy	Reduce house price appreciation and transaction activity
Jiménez and others (2012), Spain	Dynamic provisioning	Panel regression on comprehensive bank-, firm-, loan- and loan application-level data from 1999 to 2010	Mitigate credit supply cycles and have positive aggregate firm-level credit availability and real effects
Krznar and Medas (2012), Canada	LTV, DTI, amortization period	Regression of mortgage credit growth and house price growth on their determinants and dummy variable representing macroprudential policy	Reduce mortgage credit and house price growth
Wang and Sun (2013), China	Reserve requirement ratio, house-related policies, capital ratio, liquidity ratio, reserves for impaired loans to total loans ratio	Panel fixed-effects regression of loan growth, house price growth on 171 banks and 31 provinces between 2000 and 2011	The change in the reserve requirement is negatively associated with loan growth, house-related policies, capital requirement and liquidity ratios are ineffective; reserve requirement and house related policies effective with respect to the house price growth

Note: DTI = loan-to-income; LTV = loan-to-value; VAR = vector autoregression.

The experience from Canada also suggests that macroprudential policy measures taken to address a housing boom can be effective. Since 2008, in response to surging house prices and mortgage credit, the Canadian authorities undertook four rounds of measures to tighten mortgage rules. These measures included tightening LTV ratios on refinancing loans and on loans to purchase properties not occupied by the owner; reducing the maximum amortization periods to 25 years; and introducing a maximum total debt service ratio of 44 percent.

Figures 3.7 and 3.8 suggest that mortgage credit growth slowed sharply after the first measures were taken in 2008, while house price growth, although more volatile, has also been lower since the measures were introduced. Krznar and Morsink (2014) formally test the effectiveness of macroprudential policy in Canada and conclude that the moderation in house prices and mortgage credit since 2010 has been due in part to policy measures.

Figure 3.7. Canada: Residential Mortgage Credit

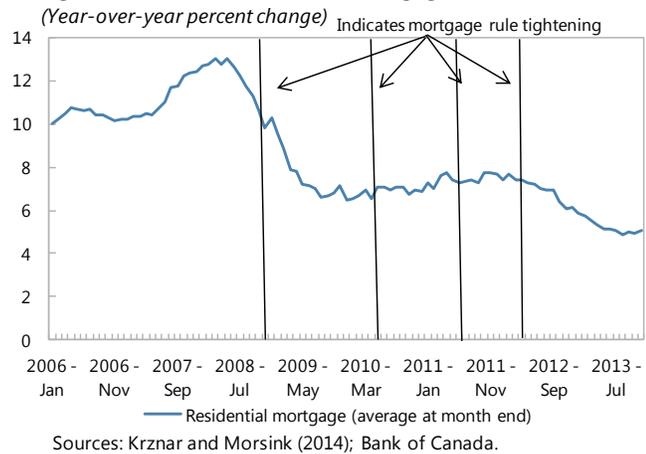
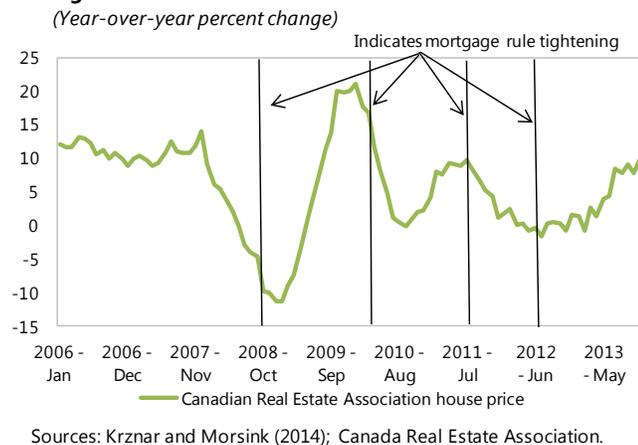


Figure 3.8. Canada: House Prices



Framework for Countercyclical Macroprudential Policy

A prerequisite for countercyclical macroprudential policy is a system of early warning indicators to signal vulnerabilities and guide the use of macroprudential tools. Indicators to identify systemic risks (such as macroeconomic imbalances and strong credit growth), inter-linkages between financial and real sectors, and fragility in the structure of the financial system can be used to determine timing for activation or deactivation of macroprudential instruments and to bring clarity and credibility to macroprudential policy. Indicators can be used in a “rules-based” fashion to time the use of macroprudential instruments (e.g., the Swiss guided discretion approach for the countercyclical capital buffer), or they can be used in a more “discretionary” way as a guide to macroprudential policymaking (e.g., UK core indicators monitored by the Financial Policy Committee). A recent paper by the Committee on the Global Financial System

(CGFS, 2012) and the IMF Staff Guidance Note on Macroprudential Policy (IMF, 2014b, 2014c and 2014d) discuss the best practices in this area.

In order to strengthen macroprudential analysis, GCC countries generally conduct regular systemic assessments and publish financial stability reports. Table 3.5 shows that all other GCC countries now publish financial stability reports, although some have only recently started doing so. In Saudi Arabia, a dedicated Financial Stability Division, established in 2013, has recently developed an internal macroprudential dashboard (Table 3.6) and is improving the stress-testing framework, which should help establish an early warning system. It is also in the process of finalizing the first financial stability report. Outside the GCC, financial stability reports have a longer history, with Norway starting reporting in 1997 and Canada in 2002. Such reports help improve the transparency of risk recognition in the financial system and facilitate broad communication.

More broadly, a formal framework for macroprudential policy is important to ensure effectiveness. A framework helps establish responsibility for macroprudential policy and ensures that the designated authority has the willingness to act and coordinate with other authorities when necessary. Regulatory “underlap” in advanced economies was considered a big factor behind the global financial crisis. A framework also ensures access to information for effective early warning and ensures that the macroprudential authority has the requisite powers to act in the face of evolving risk. Such powers can be “hard” (direct), “semi-hard” (comply or explain), or “soft” (recommendation), depending on tools and country-specific factors. Finally, as with the early warning system and dashboard, a formal framework helps in communication to create public awareness of risk and allows markets to form expectations about future action.

Commodity-exporting countries, particularly those that use macroprudential tools in a countercyclical way, are moving toward formal frameworks. This is done by designating a macroprudential authority to ensure coordination and assign responsibility for macroprudential regulation. Brunei, Canada, Mexico, Russia, and South Africa have established Financial Stability Boards to coordinate and implement macroprudential policy, while other countries such as Kazakhstan and Malaysia have given the central bank explicit powers over macroprudential policy (Table 3.6). Internationally, three broad frameworks have evolved:

- Central Bank with explicit mandate and powers (e.g., Czech Republic)
- Committee within central bank (e.g., UK Financial Policy Committee)
- Committee outside central bank (e.g., Australia, France, United States)

Currently, macroprudential tools in Saudi Arabia are used outside of a formal macroprudential

framework and coordination among regulators is largely informal. However, the authorities are considering a formal macroprudential framework, and SAMA has carried out a detailed study, identifying the key requirements, international developments in peer and other countries, and the tools and instruments for its implementation. The structure is yet to be decided upon, but it is likely that the overall responsibility will reside with SAMA, with inputs from other institutions.

Table 3.5. Macroprudential Framework of Selected Commodity Exporters, 2013

	Financial Stability Report (First Published)	Designated Macroprudential Authority
Saudi Arabia		
Bahrain	2007	√
Kuwait	2013	
Oman	2013	
Qatar	2010	
United Arab Emirates	2013	√
Algeria		
		√
Azerbaijan	2010	
Brunei Darussalam		√
Canada	2002	√
Chile	2004	
Indonesia	2003	
Kazakhstan	2006	√
Malaysia	2006	√
Mexico	2006	√
Norway	1997	
	2012	
Russia	(New Format)	√
South Africa	2004	√
Trinidad and Tobago	2008	

Source: IMF; and national authorities.

Table 3.6. Internal SAMA Macprudential Dashboard

Indicator	Examples
Overall economy	Oil GDP Inflation Oil Prices
Credit Overview	Credit growth (aggregate and by sector) Credit to GDP Credit Maturity
Banking Sector (Credit risk, funding and liquidity risk, capital adequacy, market risk, global risk, and interconnectedness)	Total assets Credit Revenues Profitability Expenses Nonperformng loans Loan to deposit Liquidity Capital adequacy ratio Investment breakdown
Insurance Sector (Funding, liquidity risk, solvency, market risk)	Gross written premium Net loss ratio Profitability Expenses Liquidity Solvency Investment breakdown
Capital Market	Market capitalization Turnover Profitability

Source: Saudi Arabian Monetary Authority.

Conclusions and Policy Recommendations

The normalization of U.S. monetary policy is expected to have a limited economic impact on Saudi Arabia, especially if it is accompanied by stronger U.S. economic prospects. Empirical results indicate an increase in U.S. interest rates may not impact Saudi non-oil output. However, if a premature normalization of U.S. monetary policy results in a surge in global financial market volatility and has an adverse impact on oil prices, economic activity in Saudi Arabia could slow. In such a scenario, fiscal policy would have the space to smooth spending, while SAMA could provide liquidity to the financial system.

SAMA has been developing its toolkit to influence credit and liquidity conditions. In recent years, large external surpluses and fiscal spending have fueled a liquidity surplus in the banking system. To absorb this liquidity, SAMA has used a number of instruments ranging from reserve requirements to more market-based instruments such as repo operations and issuance of SAMA bills. Reserve requirements were used actively to manage liquidity during the global financial crisis in 2008, but SAMA bills are used to absorb excess banking system liquidity on a more regular basis. SAMA has increased the volume of SAMA bills being issued over time. However, the monetary base is volatile, suggesting that it may be useful to develop a formal liquidity forecasting framework and further refine liquidity management tools.

There is scope to strengthen monetary policy transmission. Fiscal policy is the primary macroeconomic management tool. However, as a result of excess liquidity in the banking system, SAMA has a limited ability to contribute toward the management of aggregate demand through the provision of additional reserves. Going forward, SAMA may find it useful to deploy more active liquidity management operations to reduce excess liquidity and strengthen monetary policy transmission to help manage the impact of future shocks. In this direction, steps to strengthen monetary policy transmission may include developing the markets for short- and long-term securities to aid in the transmission of policy signals.

The macroprudential toolkit in Saudi Arabia is comparable to that of other commodity exporters although it has not generally been used in a countercyclical way. Macroprudential policies are increasingly being used in a countercyclical manner in many commodity-exporting countries to influence economic activity and financial sector risk. The experience of other countries suggests that these policies have been effective in limiting systemic risk.

A formal framework for countercyclical macroprudential policy would help to ensure effectiveness. Although early warning indicators and financial risk assessments are being developed, macroprudential tools in Saudi Arabia are currently used outside of a formal

macroprudential framework, and coordination among regulators is largely informal. Establishing a formal framework with SAMA as the designated macroprudential authority would bring clarity and credibility to macroprudential policy and ensure the willingness to act and coordinate with other authorities when necessary. It would also be useful to develop early warning indicators to determine the timing for activation of macroprudential instruments and to signal systemic risks.

Appendix 3.1. Empirical Methodology

Empirical Model and Data

- Following Espinoza and Prasad (2012), four exogenous variables are considered in the model—oil prices, U.S. real GDP, a trade-weighted price index from partner countries, and the U.S. federal funds rate. Movements in oil prices, U.S. real GDP, and the trade weighted prices in partner countries are likely to influence economic activity and consumer prices in Saudi Arabia. Additionally, the U.S. federal funds rate is the de facto policy interest rate, owing to the lack of an independent interest rate policy. It is set in response to economic developments in the United States, but is exogenous to developments in Saudi Arabia.

- Five macroeconomic variables for Saudi Arabia are considered to be endogenous and relevant for modeling monetary policy transmission: government expenditure (*G*), non-oil real GDP (*Y*), private sector credit (*Credit*), consumer prices, and reserve money (*RM*) (Table A3.1). *RM* is considered to be a policy variable, as SAMA controls this through its liquidity management operations.

Table A3.1. Correlation Matrix of Innovations

	G	Y	Credit	CPI	RM
G	1	0.38	-0.05	-0.06	0.08
Y	0.38	1	0.27	0.20	0.08
Credit	-0.05	0.27	1	-0.13	0.17
CPI	-0.06	0.20	-0.13	1	-0.01
RM	0.08	0.08	0.17	-0.01	1

Quarterly data from 1993:Q1

Sources: Saudi Arabia Monetary Authority; and IMF staff calculations.

to 2013:Q4 are used. Annual

series for *G* and *Y* are interpolated using a quadratic trend.

- All endogenous and exogenous variables except the federal funds rate are expressed in logarithm and found to be stationary in first differences ($I(1)$) according to the Augmented Dickey-Fuller unit root tests.
- Correlations between innovations in the endogenous variables are reported below. Correlation between *G* and *Y*, and *Y* and *Credit* are statistically significant. There is limited

evidence of collinearity between the variables.

- The Johansen cointegration test reveals the presence of one cointegrating vector among the endogenous variables. Therefore, to model the long-run relationship between the endogenous variables, we estimate a vector error correction model.
- The Cholesky ordering of the endogenous variables (to calculate the impulse responses) is akin to that of Espinoza and Prasad (2012) and Cevik and Teksoz (2012). Government expenditure (G) is ordered first under the assumption that it does not contemporaneously respond to developments in the other variables owing to lags in implementation. Y is ordered second, followed by $Credit$, CPI , and RM .
- Lag exclusion tests are used to determine the appropriate lags for inclusion in the vector error correction model. As a result, we include lags 1, 4, 5, and 8 for endogenous variables, while lags 1 through 4 are included for the exogenous variables. The model is stable.

The Cointegrating Vector and the Error-Correction Term

- The cointegrating equation (with t-statistics in parentheses) is estimated as:

$$G + 8.42*Y - 3.24*Credit + 10.36*CPI - 6.54*RM - 82.49 = e_t$$

$$(3.0) \quad (-3.2) \quad (4.1) \quad (-4.6)$$

- The cointegrating equation suggests that an increase in G or Y is associated with an increase in credit and reserve money over the long term. Similarly, an increase in $Credit$ or RM may be associated with an increase in G , Y , and the CPI .
- The second step of the vector-error correction model includes the error correction term and the first-differenced lags of the endogenous and exogenous variables. Estimated coefficients for the error-correction term imply that deviations from long-run equilibrium are corrected primarily through adjustments in Y and CPI .

Robustness Checks

- We estimate an additional specification of the model, replacing the trade-weighted price index for partner countries with the U.S. consumer price index and the nonfuel commodity price index. These specifications of the model result in two cointegrating vectors. Impulse response functions derived from these models are directionally consistent with those derived above.

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4

Economic Diversification in Saudi Arabia: The Past, the Present, and the Way Forward

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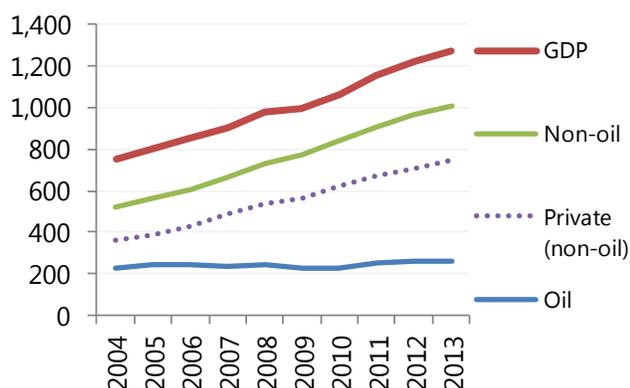
Saudi Arabia's economy has evolved significantly over the past decade, but further diversification is important. As stated in the Ninth Development Plan of the Kingdom of Saudi Arabia: "With successive development plans recognizing the risks inherent in one-sided heavy reliance on production and export of crude oil, diversification of the production base of the Saudi economy has been, ever since the beginning of development planning, a prime target for economic development." The government has used rising oil receipts to increase investments in human resource development and public infrastructure. The share of non-oil output in GDP has increased steadily, although export diversification has been more limited. While non-oil exports have grown quite strongly, they remain a small share of total exports and are largely concentrated in products closely related to oil. Experience from other oil-exporting countries suggests diversification is a long and difficult process. Saudi Arabia does not appear to suffer from traditional Dutch disease problems holding back the development of a competitive non-oil tradable sector, although oil revenues may crowd out tradable production in other ways. The relatively higher wages available in the public sector mean this is often a more attractive employment choice, particularly for lower-skilled workers, than the private sector. For firms, producing goods and services to meet the consumption and investment needs of the domestic market is a more reliable profit source than gearing business plans toward riskier export activities. Addressing these incentives while undertaking further reforms to strengthen the business environment and improve the education and skills of the workforce will be necessary to meet the government's goal of further economic diversification.

Diversification of Saudi Arabia's Economy over the Past

Decade

The non-oil sector in Saudi Arabia has grown strongly over the past decade. While oil GDP rose, non-oil output almost tripled during 2004–13 in nominal terms and doubled in real terms.¹³ On average, nominal non-oil output now constitutes half of total GDP, with the share of private sector (non-oil) activity in total output amounting to over a third, on average. However, in real terms, the share of non-oil economic activity increased by some 10 percentage points of GDP between 2004 and 2013, reaching almost 80 percent by 2013 due to stronger private sector activity (Figure 4.1).

Figure 4.1. Real GDP
(SAR billion, constant prices, 1999=100)



Source: Central Department of Statistics and Information (CDSI).

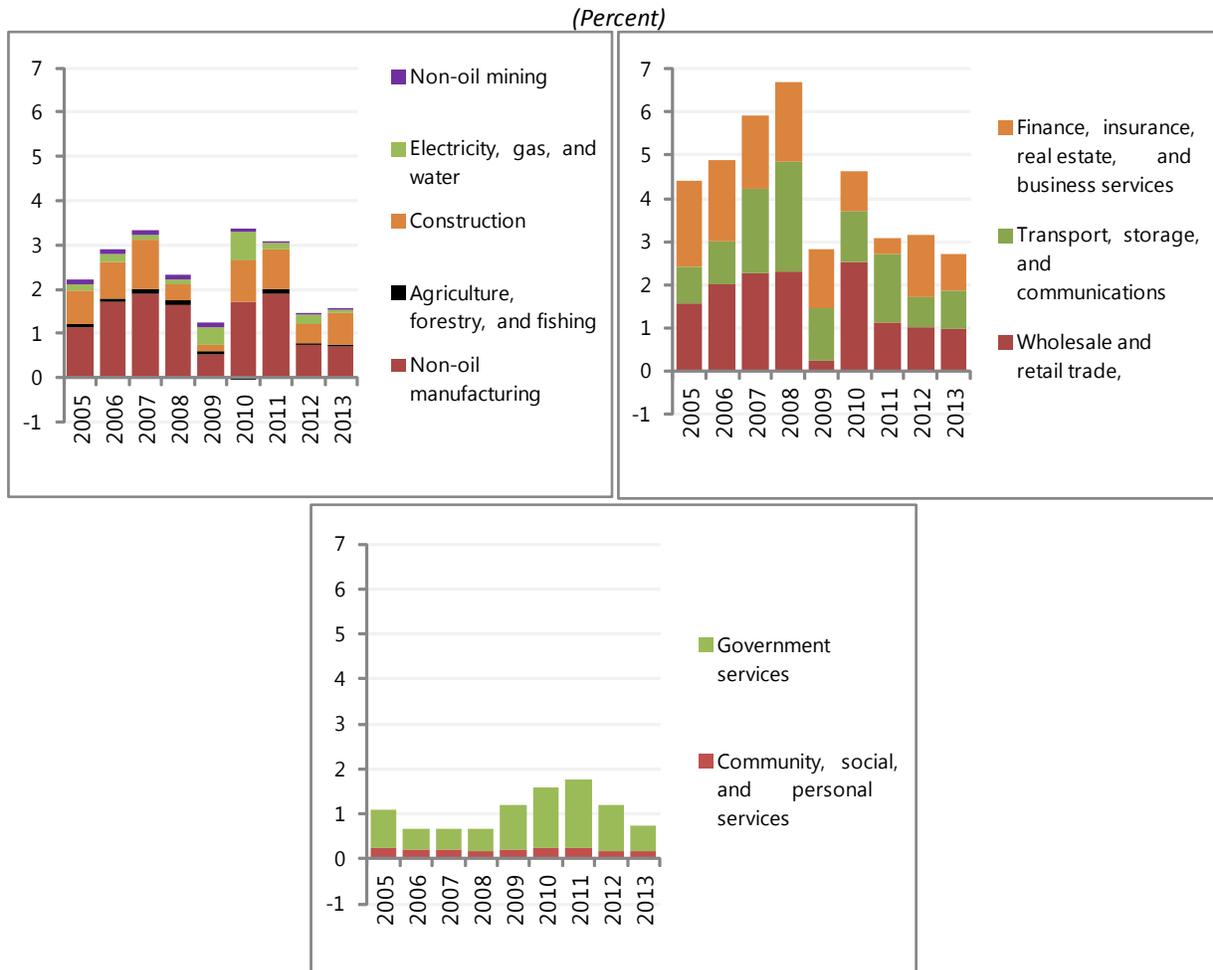
Real growth in the non-oil sector has outpaced that in the oil sector, yet decelerated starting in late 2010. Real growth in non-oil GDP averaged 7.7 percent during 2004–13, compared to oil GDP growth of 1.6 percent. The contribution of non-oil output to overall GDP growth over the past decade has averaged 5.7 percentage points compared to the smaller and more volatile contribution of oil GDP to overall growth. Nevertheless, non-oil growth has steadily decelerated since 2010, beginning with wholesale and retail trade in 2011, and followed by slower growth in other sectors over the past two years (manufacturing, construction, transport and communication, and to some extent, government services) (Figure 4.2). Within the energy sector, efforts are ongoing to diversify energy sources away from oil through the development of gas, solar, and other sources (Box 4.1).

The correlation between oil and non-oil activity is strong in nominal terms, but weaker in real

¹³ The new GDP data released in 2013 starts in 2004.

terms. The correlation between the two sectors is 0.9 in levels and 0.7 in growth rates for nominal components (oil and non-oil, respectively), and 0.5 and 0.17 for the real components.

Figure 4.2 Contributions to Real Non-Oil Growth



Source: Central Department of Statistics and Information (CDSI).

In terms of employment, diversification in the jobs held by nationals is limited. Saudi Arabia has created over 2.7 million new jobs since 2008, of which 1 million were filled by Saudi citizens, yet most of the latter were in the public sector. In construction, 800,000 new jobs were added, while in the services sector, the number of workers increased by a cumulative 1.5 million, particularly in social and community services, trade, and tourism. Out of this total, 37 percent—or approximately 1 million new jobs—went to Saudi nationals. However, most of the Saudi new employment was concentrated in the administrative, educational, and health sectors (social and community services), which are typically associated with the public sector (Figure 4.3).

Box 4.1. Ongoing Efforts to Diversify Saudi Arabia's Energy Sector

Energy use per capita in Gulf Cooperation Council (GCC) economies is much higher than in other countries and regions. All GCC countries rely almost exclusively on fossil fuel consumption for their energy needs, compared to relatively lower ratios for a number of advanced economies (as well as India and Brazil). While Saudi Arabia consumes the lowest amount of energy per capita in the GCC, fuel consumption has almost doubled since 2000.

Given rising energy needs on the back of a rapidly expanding economy and population, the Saudi government is taking steps to diversify out of fossil fuels. Saudi Arabia is estimated to need three to four gigawatts of additional electric power capacity annually to meet rising energy demand. This will require large investments in both transmission and distribution networks. As such, the authorities have established the King Abdullah City for Atomic and Renewable Energy to diversify the economy's energy mix (particularly from nonrenewable sources), and are contemplating the involvement of the private sector in about one-third of the total planned investments.

In the electricity field, investment in and ownership and management of a few electricity and water plants has been opened up for foreign and private investors. The authorities have adopted an Electricity Industry Restructuring Plan to oversee the breakup of the Saudi electricity company into three subfields of activity; transmission, generation, and distribution. This is a step to restructure the sector and introduce competition among firms to liberalize electricity prices.

Saudi Arabia is a major investor in the GCC electricity grid, which has potential for regional expansion. The GCC grid spans more than 800 kilometers and links power networks in Saudi Arabia with Bahrain, Qatar, United Arab Emirates, Kuwait, and Oman. The World Bank has carried out a feasibility study on linking Saudi Arabia's power networks with those in the European Union to harness the different peak load times between the regions.

Source: Alawaji (2012).

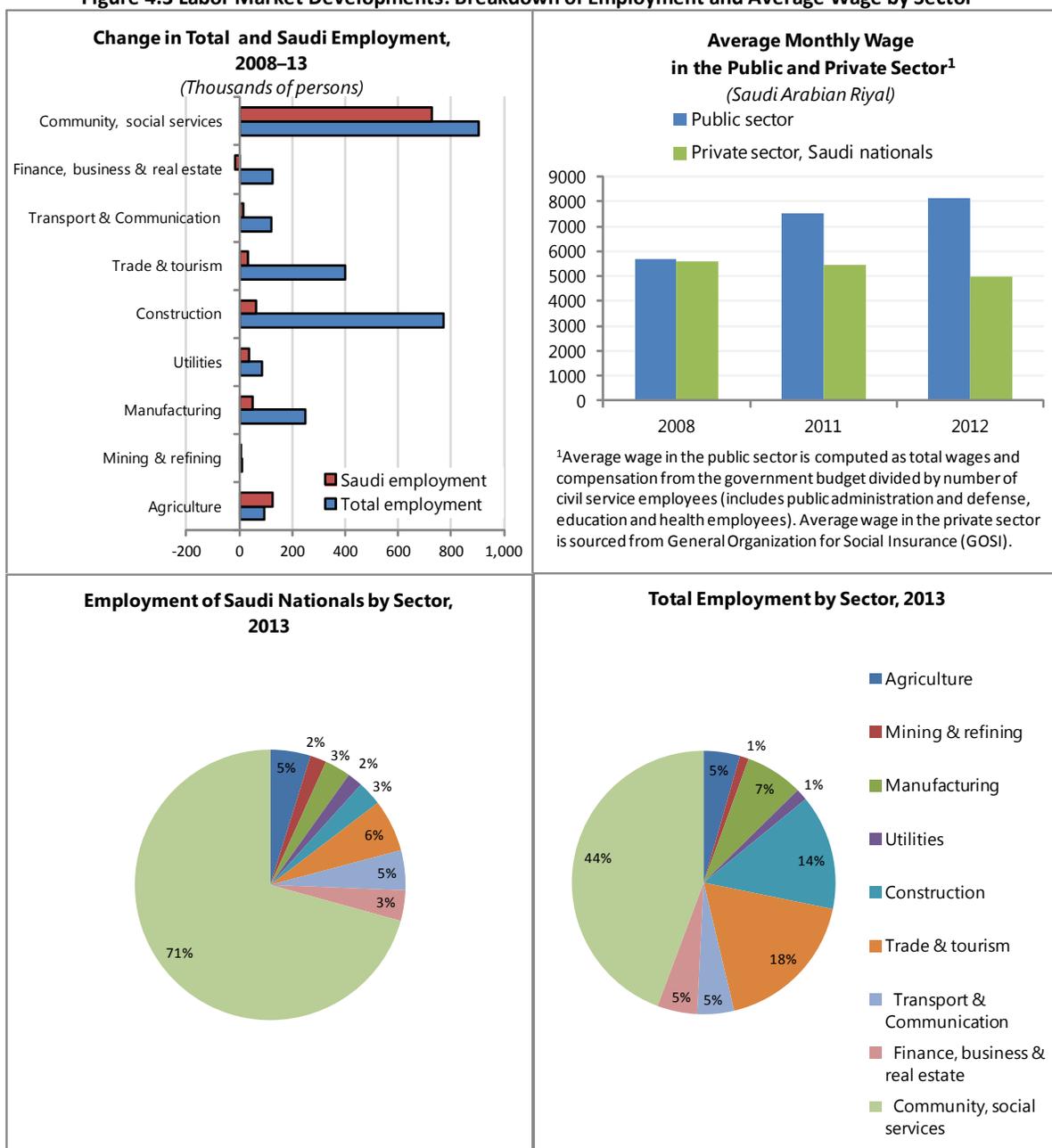
Differentials in relative wages and the number of hours worked affect the incentives for Saudis to work in the private sector. In 2012, the average wage paid to Saudi nationals working in the public sector exceeded that in the private sector (Figure 4.3). Further, the number of weekly hours worked on average by nationals is typically lower than the average hours worked on the economy-wide level (by some 10 hours a week according to data from the Central Department of Statistics and Information).

In terms of export diversification, Saudi Arabia's exports are still driven primarily by oil. Total exports (goods and services) have increased steadily since 2004 on the back of rising global oil prices and oil market demand—making up more than half of national output over the past decade. Oil still makes up nearly 85 percent of total exports. Diversification into non-oil exports has progressed. In value terms, non-oil exports increased five-fold between 2003 and 2013, growing at an annual rate of some 20 percent, albeit from a low base. The share of non-oil exports in non-oil output has seen a notable pickup since 2004 (by three percentage points of non-oil GDP), reaching 13.6 percent by 2013. Non-oil exports are largely comprised of oil-related products such as chemicals and plastics, which account for 8–9 percent of total exports, while foodstuffs (including agriculture produce and live animals) amounts to less than 2 percent of exports, and base metals less than 1 percent. The share of services exports in total exports remains small (3 percent), and has not grown over time (two-thirds of this is travel-related receipts). Data on the breakdown of exports by degree of use shows that 95 percent of exports are commodities for intermediate consumption (final consumption goods constitute 4 percent of total exports), and less than 20 percent of total exports are in the form of semi-finished and finished commodities. Export concentration, as measured by the Theil index, has increased since 2000, reflecting the sharp increase in oil revenues over this period. This stands in contrast to the Theil index for real sector activity, which shows continuing diversification in recent years (Figure 4.4). Boxes 4.2 and 4.3 contain more details of Saudi Arabia's trade structure and policies.

Indicators suggest that the quality of Saudi Arabia's exports remains relatively low. This is unsurprising given that crude oil dominates the export basket and oil exports have grown strongly (the measure of export quality is closely tied to the oil price, with a correlation of 0.9 since 2001). Data on the quality ladder of exports by sector—which compares for each sector the quality of exports in Saudi Arabia with a corresponding range in other countries—finds that Saudi Arabia has a relatively low quality in the minerals sector because crude oil constitute most of its exports in this category. In contrast, the quality of exports of chemical products compares well to other countries, yet its share in total Saudi exports is still relatively low (Figure 4.4).

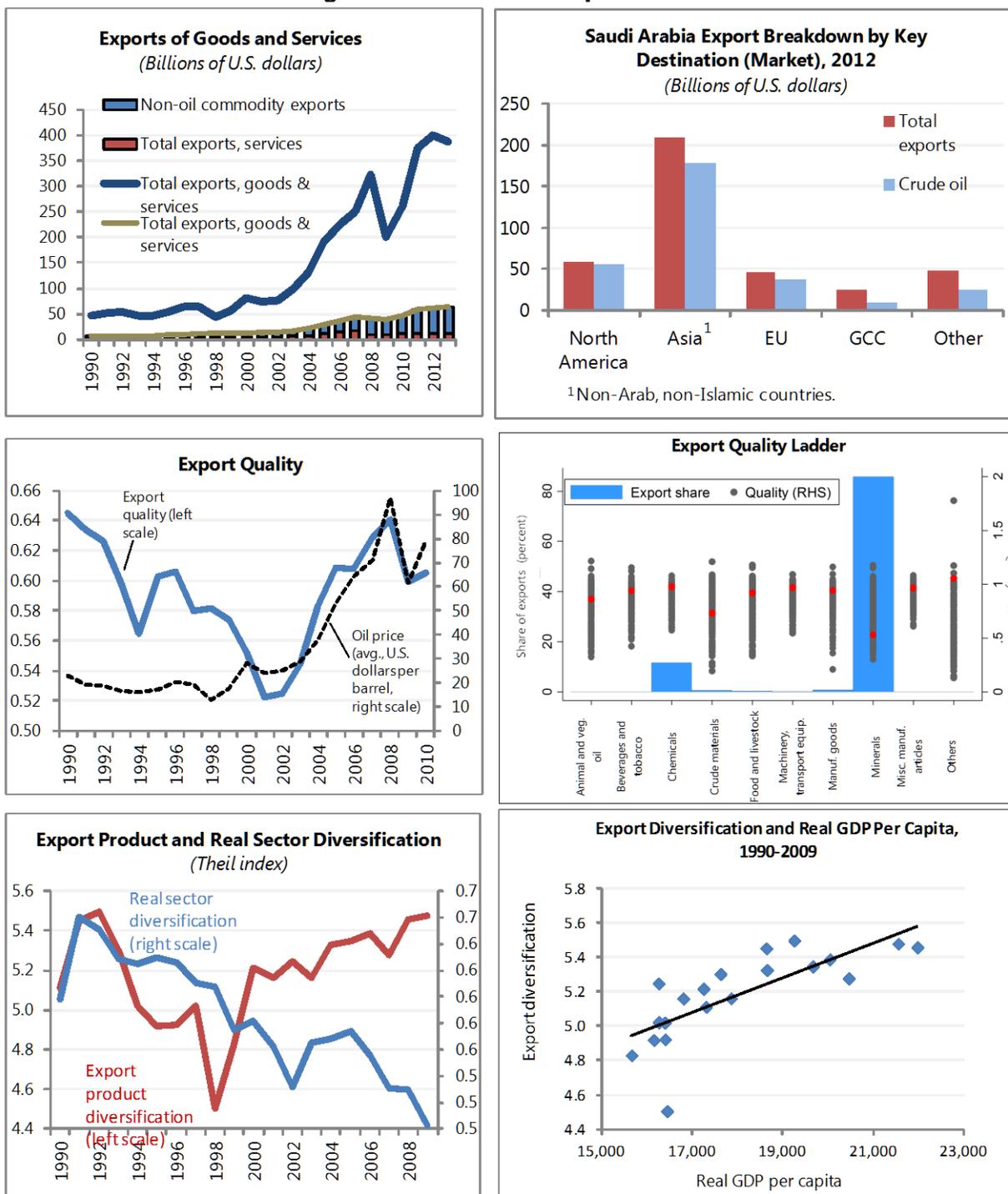
The destination of Saudi Arabia's exports has changed over time in line with changes in global oil demand, with over half of exports now going to Asian markets. China is now the second most important export market for Saudi Arabia after the United States. Japan is the third largest export market. On the other hand, intra-GCC trade has not taken off despite the establishment of a customs union. Saudi Arabia's total exports to the GCC were only 6.6 percent of total exports in 2012 (Figure 4.4).

Figure 4.3 Labor Market Developments: Breakdown of Employment and Average Wage by Sector



Sources: Central Department of Statistics and Information (CDSI) for employment figures; International Labor Organization (ILO) for number of civil service employees; and General Organization for Social Insurance (GOSI) for private sector average wage data.

Figure 4.4. Saudi Arabian Export Structure

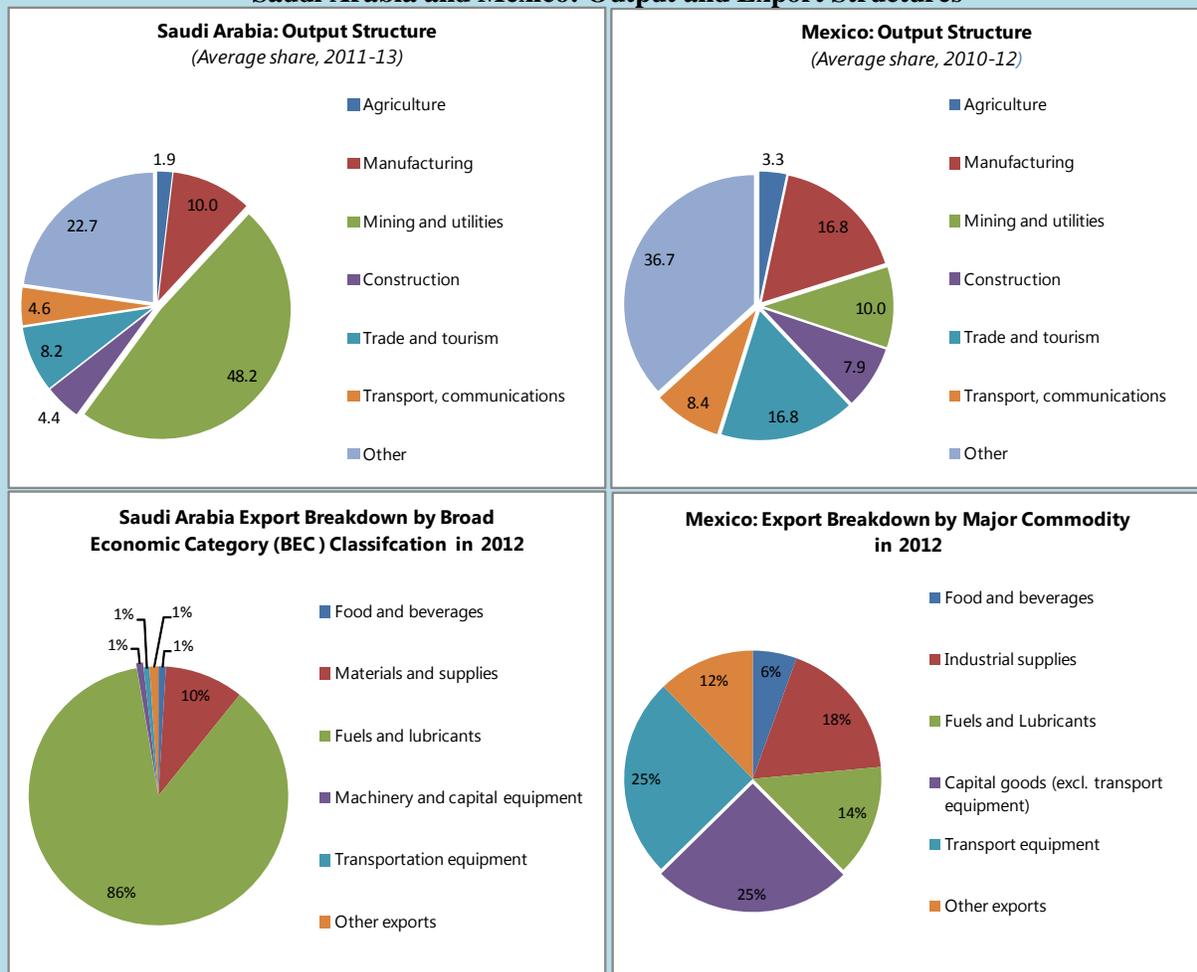


Sources: Export Statistics Bulletin; Central Department of Statistics and Information (CDSI); Export Diversification and Quality Dataset (IMF Data Mapper); and IMF staff calculations.

Box 4.2. Saudi Arabia and Mexico: Compositional Differences in Output Structures and Export Sophistication

A comparison with Mexico highlights the sizable hydrocarbons sector in Saudi Arabia (output and export concentrations). Saudi Arabia's non-oil sector comprises half of nominal output, but exports are dominated by hydrocarbons, which account for some 85 percent of total exports. Mexico's production and export structures are more diversified, benefiting from the country's accession to the North American Free Trade Agreement. The export of fuels as a share of total exports is much lower, while capital and transport goods each account for one-quarter of total exports.

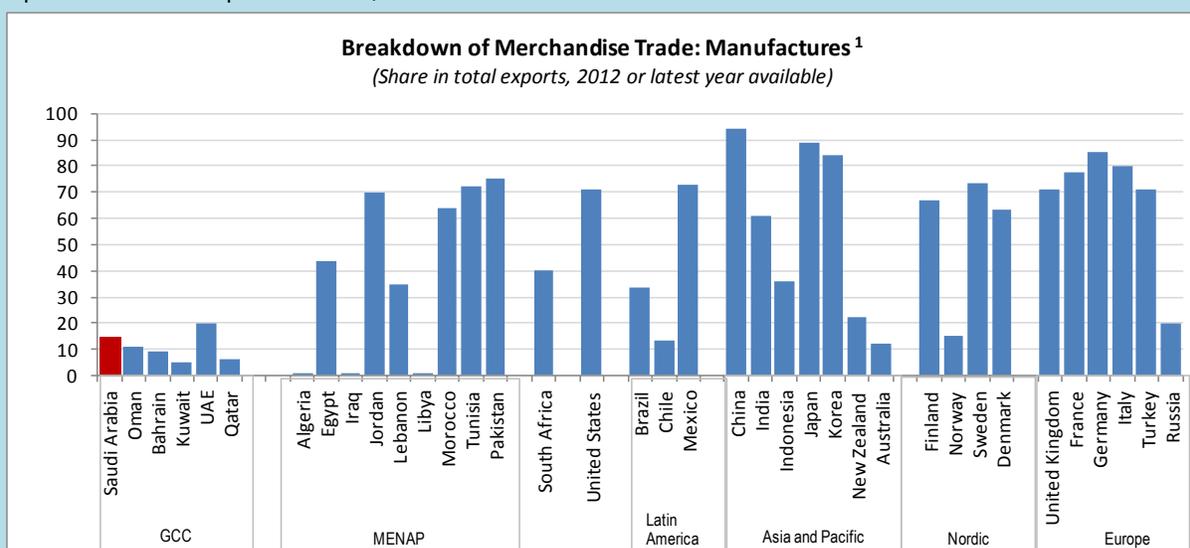
Saudi Arabia and Mexico: Output and Export Structures



Sources: Export Statistics Bulletin, Central Department of Statistics and Information (CDSI); and UN Comtrade Database.

Box 4.3. Saudi Arabia, Global Trade, and the World Trade Organization

Saudi Arabia joined (acceded to) the World Trade Organization (WTO) in December 2005. The country is a member of two main regional trade agreements: the Gulf Cooperation Council (GCC), which entered into force in January 2003 as a customs union covering goods; and the Pan-Arab Free Trade Area (PAFTA), which adds 12 Middle East and North Africa (MENA) countries to the GCC and entered into force on January 1998. As a GCC member, Saudi Arabia also participates in GCC-related regional arrangements, such as the European Free Trade Area (EFTA)-GCC (signed but not ratified), Australia-GCC (announced), and Japan-GCC blocs (announced). The country is also a beneficiary of a number of Preferential Trade Arrangements in force with Australia, New Zealand, Russia, Switzerland, and Turkey (all under the generalized system of preferences). While Saudi Arabia's total *trade value per capita* is the lowest among GCC economies given its relatively larger population, it is comparably higher than in most MENA countries, and also comparable to that of the BRICS (Brazil, Russia, India, China, and South Africa). In terms of *merchandise trade*, Saudi Arabia's share in total world exports is slightly above 2 percent, which is much higher than for other countries in MENA, larger than most GCC shares (United Arab Emirates has the closest figure of 1.9 percent), and even higher than that for a number of developing and emerging markets (such as South Africa, Brazil, Indonesia and India). However, manufactured exports as a share of total exports are low, at less than 15 percent compared to a share of up to 70 percent in a number of countries in the MENA region. Oil dominates the export basket (constituting nearly 85 percent of total exports in 2012).

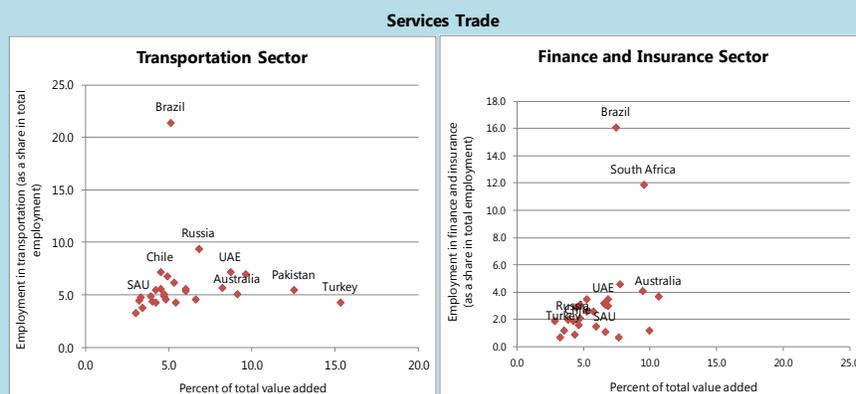


Sources: World Trade Organization, Country Trade Profiles database; and IMF staff estimates.

¹ Manufactures refer to iron and steel, chemicals, other semi-manufactures, machinery and transport equipment, textiles, clothing and other consumer goods (according to the WTO's International Trade Statistics definitions).

Box 4.3. Saudi Arabia, Global Trade, and the World Trade Organization (concluded)

Saudi Arabia's share in total world exports of services amounts to 0.24 percent (2012), with the main component being travel (70 percent of total service exports), followed by transportation (21.5 percent). Relative to other economies, Saudi Arabia's trade in services fares similarly to that of the MENA countries yet is far below corresponding shares seen in BRICS and other advanced economies. In addition, statistics from the World Bank's Services Trade Restrictions Database point to GCC countries having the highest services trade restrictions index among other regions worldwide (i.e., having the most restrictive policies in services), particularly with respect to telecommunications and financial services. The overall index score for Saudi Arabia is lowest among the GCC countries. In two key services sectors—transportation and finance and insurance—Saudi Arabia is weaker than other countries in terms of respective shares in total value added as well as in generating employment.



Source: World Trade Organization (WTO), Services Profiles - Country Tables.

In terms of recent changes to services trade policy regime (in the field of banking and other financial services, excluding insurance), the Capital Markets Authority issued a resolution in March 2010 permitting nonresident foreign investors to trade in Exchange Traded Funds (ETFs) on the Saudi Stock Exchange (Tadawul). It also allowed for SWAP agreements with nonresident foreigners (individuals or financial institutions) to transfer economic benefits of shares listed on Tadawul to foreigners. More recently, plans for opening the Tadawul to foreign investors have been announced.

Saudi Arabia has a low applied tariff rate on imports: the simple average of import duties for all goods (applied Most-Favored Nation rate in 2012) was 5.1 percent, much lower than the rates applied in the case of MENA countries and BRICS, and in line with rates applied in the case of advanced economies and in other GCC countries. The rate for agricultural produce was 6.2 percent, while that for nonagricultural commodities was 5 percent.

According to the WTO's Trade Monitoring Database, Saudi Arabia has not been part of (subject to) antidumping or countervailing trade measures, export duties, or other export quantitative restrictions over the past six years.

Experiences with Economic Diversification in Oil-Exporting Countries

Achieving economic diversification in oil-exporting countries is a difficult task. Historical experience offers few examples of countries that have been able to successfully diversify away from oil, particularly when their oil production horizon is still long. A number of key obstacles that often stand in the way of diversification include the economic volatility induced by the reliance on oil revenues, the corroding effect that oil revenues often have on governance and institutions, and the risks that oil revenues often lead to overvalued real exchange rates (traditional Dutch disease issues). Malaysia, Indonesia, and Mexico perhaps offer the best examples of countries that have been able to diversify away from oil, while Chile has had some success in diversification away from copper.

Malaysia's diversification experience involved active intervention on the part of the state to spur growth in targeted sectors. This was predicated on an international competitive drive underpinned by technological transfers, with a focus on developing national oil companies into global firms. While the economy had an import-substitution strategy in heavy industry, there was an export promotion focus for manufactures, given strong global competition.

Diversification was achieved by means of (i) attracting foreign direct investment in the export sector (which led to a stronger capital base), and (ii) a focus on human and capital development through training and skill-upgrading of workers, which was provided by a fund targeting manufacturing firms as well as sponsored state funds for foreign education. At the same time, Malaysia also targeted small and medium enterprise (SME) development. Taken together, all of these factors led to eventual export diversification and takeoff over the years.

Indonesia's experience also highlights the benefits of having strong incentives to successfully diversify the export base. Similar to Malaysia's approach, Indonesia also had an import-substitution policy in place, as well as policies to attract foreign capital in the manufacturing exports field. In addition, the country enacted a number of incentives to promote exports, such as setting up free zones, providing tax incentives to firms and industries, and reducing barriers to trade (tariff and nontariff). A fundamental element of its diversification strategy, however, was a large exchange rate devaluation. Indonesia's experience also relied on using oil revenues to tap, enhance, and develop other sectors, such as agriculture and the country's aircraft industry (on both maintenance and manufacturing frontiers).

Mexico is another example where export diversification efforts hinged on creating a business environment conducive to export promotion, which was aided by joining the North American Free Trade Agreement (NAFTA). Like Malaysia, Mexico embarked on the establishment of free trade zones, and worked to ensure that wages were attractive in the labor market. To strengthen the business environment, a number of incentives to ease firm entry were extended

through (i) strong state investment in infrastructure (where needed), (ii) incentivizing firms to send workers abroad for training, and (iii) providing tax incentives to lure foreign firms to local industries. Similar to Indonesia, Mexico developed its aerospace industry (through low operating costs, good infrastructure, and ensuring the availability of the needed relatively skilled labor). Perhaps what sets Mexico's export diversification apart from other commodity-exporting countries is the benefit of a regional trade agreement—its accession to the NAFTA—that opened up new markets for its exports and served as a means to attract foreign investment, particularly into the car manufacturing industry.

Chile's approach to export diversification was different in terms of the tools it used, particularly the use of export subsidies and its reliance on public-private partnerships to help establish and develop new firms (for example, to promote technology transfers, mostly benefiting agro-industries). Chile also identified and worked on important sectors having comparative advantage, strengthening technical skills and encouraging innovation. The country's diversification strategy, like that of Malaysia, took advantage of the focus on SME development, which was undertaken by a specialized development agency that oversaw coordination of state assistance to SMEs, monitored their performance over time, and facilitated financial intermediation for their establishment and growth as needed.

While each country followed its own path, a number of common themes are evident in the diversification experiences of these commodity-exporting countries. Fundamentally, the incentives were put in place to encourage firms to develop export markets and to support workers in acquiring the skills and education that would enable them to get jobs in these new expanding areas. While the degree of success varied from one country to another and the process evolved over a long time period, diversification strategies were multifaceted and depended on a number of key elements, including:

- The provision of strong incentives for doing business
- The tapping and strengthening of nontraditional sectors, export promotion, and better trade integration
- Attraction of foreign direct investments and a reliance on technological transfers
- Education, training, and human capital development
- The development of SMEs.

Business Environment: How Does Saudi Arabia Compare with Other Countries?

Saudi Arabia compares relatively well across a number of business indicators, yet challenges remain. For example, the country has been doing well in terms of its business environment and infrastructure, incentives for export promotion, labor market regulation, and education. However, challenges remain in contract enforcement and resolution of company insolvencies, and in trade integration, despite export incentives.

Ease of Doing Business

Saudi Arabia has improved its business climate. It was ranked as the 18th most competitive economy worldwide among 144 countries in 2013 according to the Global Competitiveness Index (Figure 4.5).

- Saudi Arabia's ranking on the Ease of Doing Business Index was second to the United Arab Emirates among the GCC countries in 2013, and it outperformed key emerging market and developing countries. It is comparatively much stronger than other countries in the MENA region.
- *The country has facilitated business startups.* The number of days to start a business was reduced from over 70 days in 2004 to 25 days by 2013, an improvement that is second only to Indonesia and India over the same period. In addition, business startup costs (in percent of GNI per capita) were brought down from 60 percent to just 5 percent, and the number of procedures to register a business was reduced to nine from 14 over the past 10 years. In May 2013, a new online company application process was introduced and the number of procedures has been further reduced to seven and the number of days to 23.
- The strength of investor protection in Saudi Arabia has helped forge a business friendly environment that is the highest ranked among GCC and selected MENA countries.

Despite this progress, more needs to be done to address areas of weakness, including contract enforcement and resolving insolvencies. In these two areas Saudi Arabia ranks low on a global scale (at 127 and 106, respectively). To address these issues, the government is planning to introduce a new insolvency law, and is working to shorten the time taken to enforce judgments by recruiting more judges to work in that area and by establishing commercial courts to oversee resolution of business disputes. Other measures being taken by the authorities to improve competition and strengthen the business environment include improvements to consumer protection, stronger enforcement of competition policy, and revisions to company law.

Export Environment

In terms of the environment for exporters in Saudi Arabia, the findings are as follows:

- The number of documents required to export is low (five), less than in other GCC economies (except the United Arab Emirates), BRICS, and a number of economies in MENA.
- The costs of exporting have risen at a slower pace in Saudi Arabia than in other countries. Costs to export (measured in U.S. dollars per container) increased by a cumulative 18 percent since 2007, less than in most GCC countries (with the exception of Kuwait). The cost to export (per container) is lower than that for BRICS.
- The trade and transport-related infrastructure (measured by the Logistics Performance Index) is stronger than in most GCC countries (with the exception of the United Arab Emirates) and compares well with selected MENA economies and with the BRICS. (Figure 4.6).

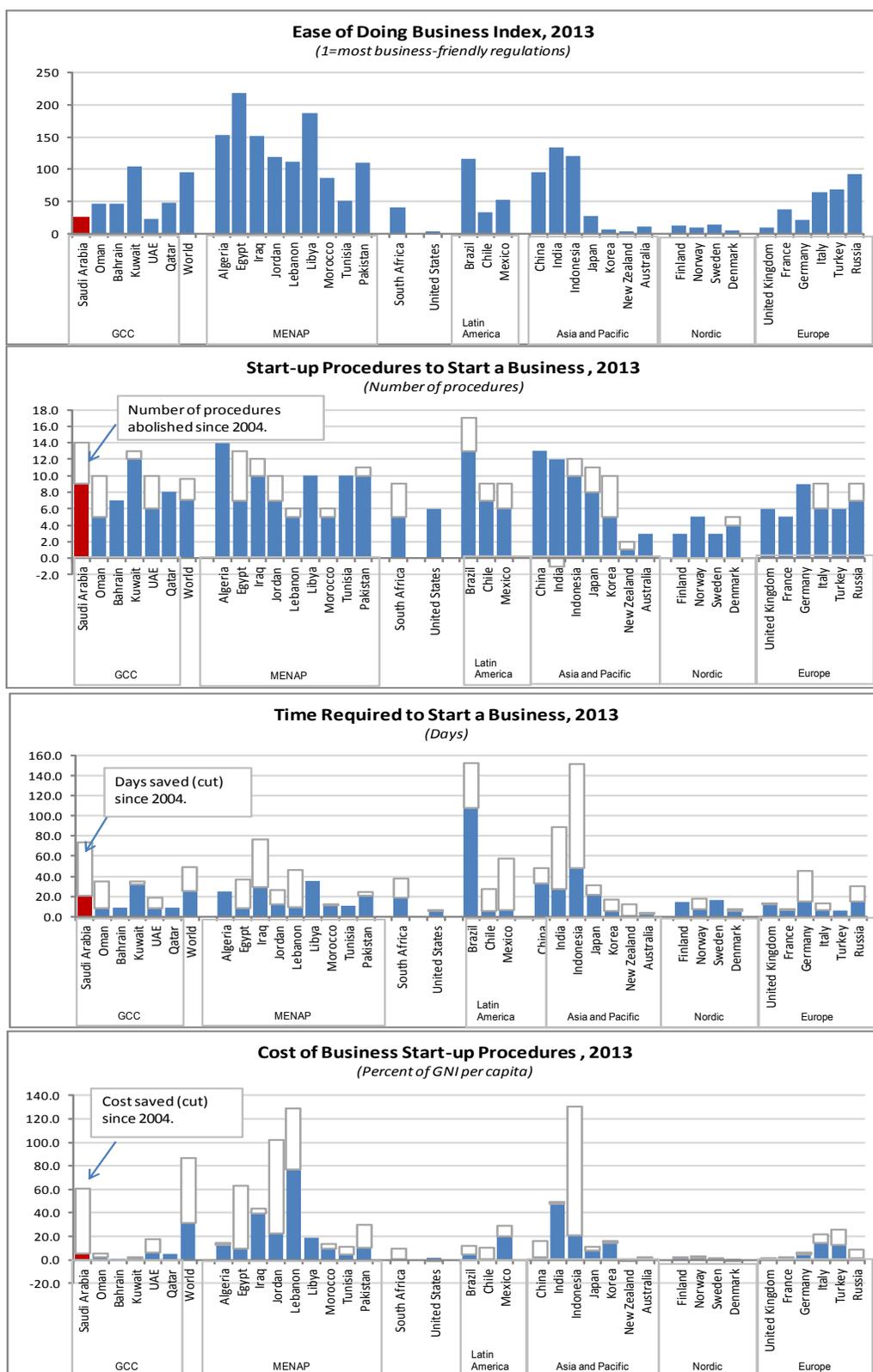
Labor Market Regulations

Saudi Arabia enacts labor market regulations that are broadly in line with many countries worldwide:

- *Working hours.* A workweek can extend to 50 hours a week per worker, similar to policies adopted in most other emerging market and developing countries or even advanced economies. However, compared with other GCC countries, Saudi Arabia (together with Qatar) has the lowest number of paid annual leave work days a year for the first year of service (18 days, as opposed to up to 30 days in Bahrain and Kuwait).
- *Redundancy rules.* Saudi Arabia applies legalities similar to those applied in other countries around the world when it comes to allowing an employer to terminate the employment contract of a worker. As for redundancy-associated costs, Saudi Arabia and two other GCC economies (Kuwait and Qatar) provide severance pay for redundancy dismissal of a worker after 10 years of continuous employment (Saudi Arabia pays 32.5 salary weeks of severance pay, higher than in most countries in MENA and in selected European economies, as well as in BRICS with the exception of China).
- *Ease of hiring.* Saudi Arabia (like other GCC countries) does not impose a limit on the duration of a fixed-term contract. In addition, fixed-term contracts are not prohibited for undertaking permanent work tasks.

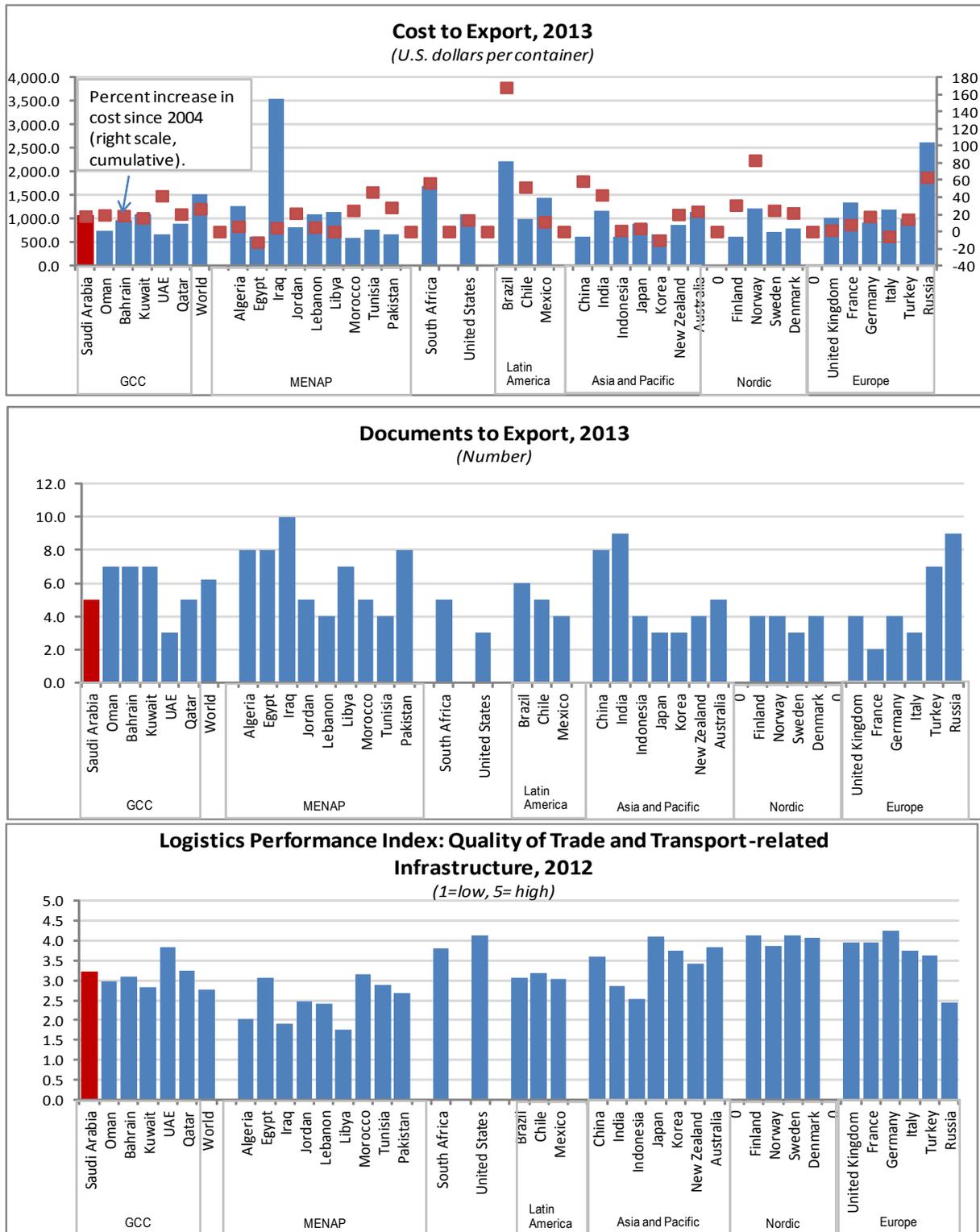
Nevertheless, other factors such as the public sector employment policy do inhibit the development of a dynamic labor market. These include (but are not limited to) wage and working hour differentials between public and private sector jobs for nationals.

Figure 4.5. Business Environment Indicators



Source: World Bank, World Development Indicators (WDI) database.

Figure 4.6. Export Competitiveness Indicators



Source: World Bank, World Development Indicators (WDI) database.

Education

Saudi Arabia has high literacy rates, both for adults and for youth. In 2011, adult and youth literacy rates stood at 87.1 percent and 98 percent, respectively. While adult literacy is slightly below the GCC average, youth literacy is in line with GCC comparators, and improved from 2004 to 2011 (Figure 4.7).¹⁴

The government is investing heavily in education and vocational training. Saudi Arabia's public spending on education as a share of national income over 2004–13 exceeded that of other GCC economies, BRICS, and a number of advanced economies, although the share declined over time (6.3 percent in 2004 to 5.1 percent 2008, according to latest available data). More recently, the authorities have increased spending on higher education, establishing a number of universities, colleges, and academic and technical institutes as part of the Ninth Five-year Development Plan, with a focus on scientific and technological research areas.¹⁵ The government has also increased the size of its overseas scholarship program with 185,000 students currently studying overseas.

Nevertheless, it will take time for these investments to improve educational outcomes. Data on the distribution of unemployed Saudi nationals by education status reveal that almost half of the unemployed nationals hold bachelors or higher degrees, suggesting there is a mismatch between educational outputs and the needs of the job market. Trends in international mathematics and science study (TIMSS) show that academic achievement in Saudi Arabia is still relatively low. Statistics show that the number of years of schooling and the enrollment rates in early childhood education are low in relative terms (WEF/EBRD, 2013).

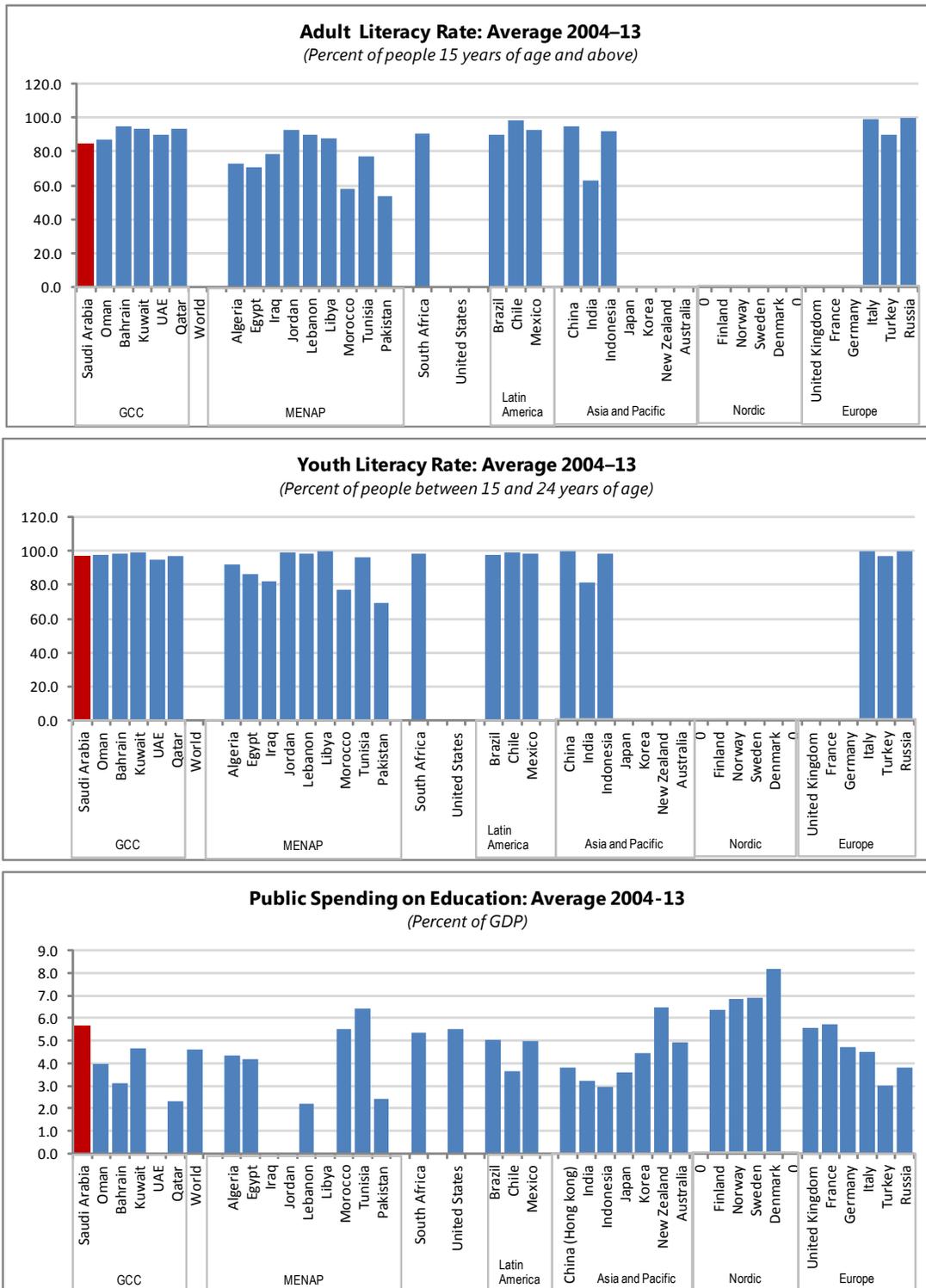
Policies to Support Further Economic Diversification in Saudi Arabia

Further economic diversification is very important for Saudi Arabia for at least four reasons. First, it would reduce the exposure of the economy to volatility and uncertainties in the global oil market. Second, it would help create the jobs in the private sector that are needed to absorb the young and growing working-age populations into the workforce. Third, it would help increase productivity and sustainable growth. Fourth, it would help put in place the non-oil economy that will be needed many years down the road when oil revenues start to dwindle.

¹⁴ Adult literacy is defined as the percent of people 15 years of age and above who can read and write; youth literacy refers to the percent of people between the ages of 15 and 24.

¹⁵ These include the King Abdullah University of Science and Technology (2009) and Princess Nora bint Abdul Rahman University (2011).

Figure 4.7. Education-related Indicators



Source: World Bank, World Development Indicators (WDI) database.
Note: Data shown, where available.

The Saudi authorities are continuing to take steps to improve the business environment, develop domestic infrastructure, and invest in the education and skills of the local population. They are also developing industrial and economic “cities” to promote clusters of industry and service development. The industrial cities house about one-half of all manufacturing industries in the country. Links are being created between universities and these cities to enhance research and development and collaboration. In addition, transportation networks are being developed to connect these cities in order to allow raw materials to be moved from mines to refining and processing facilities.

The SME sector is also being supported through a number of initiatives, including the Kafala Program (initiated in 2006), which provides SMEs with access to credit (credit guarantees); the Saudi Credit and Saving Bank, which extends loans to SMEs; the establishment of specialized SME units within banks; and the setting up of SIMAH, the Saudi credit bureau.

Efforts to improve productivity, strengthen growth, and support diversification should continue, with priorities focused on the following:

- *Business climate:* Addressing remaining areas of weakness, including by strengthening contract enforcement and resolving insolvencies. Businesses cite labor regulations and education as two key constraints to doing business in Saudi Arabia.
- *Education:* Spending has been increased at all levels of the education system and also on vocational training. However, educational attainment is still low, and a greater focus is needed on the quality and focus of education to ensure skills are being developed that are sought by the private sector. Systems need to be in place to ensure that spending on education is resulting in improved outcomes.
- *Labor market reforms:* Reforms are being implemented to increase the employment of nationals in the private sector, but further reforms are needed (see below).
- *Infrastructure:* Large public investments in infrastructure are being made to improve transportation logistics, but care is needed to ensure this spending is efficiently used.
- *Development of SMEs:* Continued facilitation of SMEs’ access to finance and other forms of support are important for further developing this sector.

Saudi Arabia already scores quite well on many of these measures on a cross-country basis, and indeed often better than other countries that have been able to achieve a greater degree of economic diversification. The domestic economic and financial environment has also been more favorable than in many other countries, with relatively low and stable inflation and a sound financial sector. So the question is how far further improvements in the business environment and infrastructure will go in encouraging diversification without a change in the underlying incentive structure of the economy.

While Saudi Arabia does not appear to suffer from traditional Dutch disease problems holding

back the development of a competitive non-oil tradable sector, oil revenues may crowd-out tradable production in other ways. The relatively flexible labor market in Saudi Arabia has meant that high oil revenues have not pushed up wages in the nontradable sector (rather, employment has increased at existing wage rates), and consequently real exchange rate overvaluation has not been a problem. However, the distribution of oil revenues does have important effects on the incentive structure in the economy. The relatively higher wages available in the public sector mean this is often a more attractive employment choice, particularly for lower-skilled workers, than the private sector.

For firms, producing or importing goods and services to meet the consumption and investment needs of the domestic market and relying on low-wage foreign labor is a more reliable income source, compared to gearing business plans that require more skilled and trained labor toward export-oriented activities. Indeed, national accounts data suggest that a very high share of GDP goes to capital (gross operating surplus) rather than labor (compensation of employees). For the overall economy and for the non-oil private sector, this ratio is around 75:25, which is high by international standards.

Addressing these incentives is a critical step in encouraging private sector growth and diversification. Workers need to be encouraged to work in the private sector or see entrepreneurship as an attractive career option, while firms need to be encouraged to move into non-oil tradable production. To achieve these goals, labor market policies should focus on the strong control of public sector jobs and wages, refocusing education toward the skills that are needed in the private sector, and increasing the competitiveness of nationals in the private sector through active labor market policies, steps to ease employment regulations of nationals where appropriate, and allowing greater mobility of foreign workers, which will ultimately narrow wage differentials. In addition to reforms to strengthen the business environment, the experience of commodity-exporting countries in diversifying their economies points to the usefulness of specific measures to encourage firms to export, including through the provision of export insurance guarantees and financing for those engaged in export activities. The recent establishment of the Saudi Export Development Authority is a welcome step to support exports. Further, encouraging private sector diversity and growth will also need to harness the role of foreign direct investment inflows geared toward non-oil activity in order to strengthen the economy's manufacturing base.

Equally important is strengthening trade, including through stronger Arab-Arab integration. A key to export promotion would be expanding Saudi Arabia's entrance into free trade agreements, given that at present the country is a signatory to only a few such agreements. Last but not least, Saudi Arabia should lead GCC economies in fostering the implementation of the Gulf Common Market launched in 2008 with the objectives of free movement of factors of production, goods, and services.

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