

II. Debt, oil price and military expenditure

NAN TIAN AND DIEGO LOPES DA SILVA

For countries whose economies are dependent on the export of oil, the size of government oil revenues plays an important role in decisions on spending. The fall in the price of oil in 2014 (and the low oil price since then) has severely reduced oil revenues in these countries. This has led them to increasingly rely on alternative sources of finance (e.g. borrowing or debt) to fund spending, including military expenditure. However, substantial increases in debt to unsustainable levels can potentially hinder economic development.

Following the oil price crash, oil export-dependent economies were exposed to sustained revenue losses, with macroeconomic consequences such as inflation, currency depreciation and severe budgetary pressures. In the process, the trade balance of countries such as Angola, Iran, Kuwait, Mexico and Saudi Arabia started to worsen because of lower exports and unchanged imports. This effect led to substantial cutbacks in government and military expenditure in many oil export-dependent countries, while debt has since soared.

This section expands the discussion in *SIPRI Yearbook 2017* on oil price shocks and military expenditure to include the role of debt.¹ It starts by providing an overview of the theoretical relationship between debt, military expenditure and the price of oil in oil export-dependent countries. This is followed by empirical analysis, which is supported by two brief country case studies, and some key conclusions.

The impact of military expenditure on debt in oil export-dependent countries during oil price shocks

The contribution that military expenditure makes to the build-up of a country's debt is an important point to consider given the potential adverse economic effects of debt. A reasonable level of borrowing can be beneficial to economic growth since it allows for capital mobility, investment and an increase in the marginal product of capital (i.e. the additional output resulting from the use of an additional unit of physical capital). Greater investment and higher rates of return will boost economic growth, allowing timely repayment of debt with overall benefits to the economy. However, excessive debt can have detrimental economic consequences since it leads to lower rates of return (because creditors have the first claim on any income) and

¹ Tian, N., 'Oil price shocks and military expenditure', *SIPRI Yearbook 2017*, pp. 343–49.

discourages investment, and hence economic growth. This phenomenon is known as ‘debt overhang’.²

A fall in oil prices can have a significant effect on oil export-dependent economies. While the price of oil is volatile and varies on a daily basis, expenditure decisions are made annually with limited room for short-term adjustments. As revenue from oil drops and expenditure does not change, a gap between income and expenditure develops, which is often funded through debt (internal and external). The rise in debt following the loss of oil revenue is undesirable and governments may choose to limit it by cutting government expenditure in subsequent years (as happened in e.g. Algeria, Mexico, Russia and Saudi Arabia). However, because the loss in oil revenue is often much greater than the cuts in government spending, debt as a share of gross domestic product (GDP) will continue to increase in many countries.

These phenomena have been witnessed in all oil export-dependent countries following the sharp fall in the price of oil in late 2014. For these countries, cuts in government expenditure only occurred in the 2016 budget.

Military expenditure, a part of government expenditure, contributes to debt accumulation in two main ways. First, just like any other budget item, if revenue is insufficient to pay for military expenditure, a budget deficit will ensue. Second, arms imports must be paid for through foreign exchange, which may create a need to borrow externally.³ One study has estimated that the external debt of developing countries would have been 20–30 per cent lower between 1970 and 1979 if arms imports were absent.⁴ Even in a developed country such as Greece, military expenditure has been shown to have partially contributed to the growth of debt, in particular foreign debt through borrowing to finance arms imports.⁵

For oil export-dependent countries, a sustained low oil price creates a prolonged problem of unsustainably high levels of debt as a share of GDP. Thus, a substitution effect may occur where governments choose to prioritize certain sectors over others. In the case of military expenditure, the choice is commonly based on a country’s security situation. As empirical evidence

² Reinhart, C. M. and Rogoff, K. S., ‘Growth in a time of debt’, National Bureau of Economic Research (NBER) Working Paper no. 15639, Jan. 2010; Krugman, P., ‘Financing and forgiving a debt overhang’, *Journal of Development Economics*, vol. 29, no. 3 (Nov. 1988), pp. 253–68; and Sachs, J. D., ‘The debt overhang of developing countries’, eds G. A. Calvo et al., *Debt Stabilization and Development: Essays in Memory of Carlos Diaz Alejandro* (Basil Blackwell: Oxford, 1989).

³ Dunne, J. P., Perlo-Freeman, S. and Soydan, A., ‘Military expenditure and debt in small industrialised economies: a panel analysis’, *Defence and Peace Economics*, vol. 15, no. 2 (2004), pp. 125–32; and Dunne, J. P., Perlo-Freeman, S. and Soydan, A., ‘Military expenditure and debt in South America’, *Defence and Peace Economics*, vol. 15, no. 2 (2004), pp. 173–87.

⁴ Brzoska, M., ‘The military related external debt of third world countries’, *Journal of Peace Research*, vol. 20, no. 3 (Sep. 1983), pp. 271–77.

⁵ Kollias, C., Manolas, G. and Paleologou, S., ‘Military expenditure and government debt in Greece: some preliminary empirical findings’, *Defence and Peace Economics*, vol. 15, no. 3 (2004), pp. 189–97.

shows, countries will fall into one of two categories. The first category includes countries that are involved in armed conflict or have other security concerns. These states often cannot cut military expenditure as it may threaten state survival. Since military spending in these cases must either remain constant or increase, debt as a share of GDP will probably rise if no substantial cuts are made in other areas. The second category includes countries that are not involved in armed conflict or have no pressing security concerns. For such countries, lower revenues lead to cuts in military spending. Nonetheless, the cuts in expenditure (both overall spending and military spending) remain relatively minor in comparison to the losses in oil revenue and thus debt continues to rise.

Military expenditure and debt in oil export-dependent countries, 2014–17

Studying a set of 15 oil export-dependent countries—Algeria, Angola, Azerbaijan, Ecuador, Iran, Iraq, Kazakhstan, Kuwait, Mexico, Nigeria, Norway, Russia, Saudi Arabia, South Sudan and Venezuela—allows an assessment of the trend of military spending and debt as a share of GDP for the years 2014–17. These 15 countries were chosen on the basis of data availability for military spending, healthcare and education budgets, and in order to include states with high (Angola, Iraq, Kuwait and Saudi Arabia), moderate (Algeria, Azerbaijan, Ecuador, Iran, Kazakhstan, Nigeria, South Sudan and Venezuela) and low (Mexico, Norway and Russia) dependence on revenue from oil exports.⁶

Only five of the 15 countries increased their military expenditure between 2014 and 2017 (see table 4.5). Four of those—Algeria, Iran, Iraq and Kuwait—are in regions of armed conflict or tension, while the fifth—Norway—has a diversified economy that is less reliant on oil revenues. Norway also perceives Russia as a growing threat. The average increase in total government debt of these five countries between 2014 and 2017 was 136 per cent, ranging from 17 per cent for Norway to 262 per cent for Kuwait. These countries potentially prioritized national or regional security over the consequences of high debt levels.

Debt as a share of GDP increased between 2014 and 2017 in all 10 countries that decreased their military spending. At the extreme, Saudi Arabia's debt grew by 989 per cent, partly because although military spending fell overall between 2014 and 2016, it started to rise again in 2017. Many of the remaining nine countries that cut military spending have less pronounced security concerns (except South Sudan, where there is an active intrastate conflict), but their debts as a share of GDP rose since the fall in their oil

⁶ For further detail on this selection see also Tian (note 1).

Table 4.5. Military expenditure and debt in selected oil export-dependent countries, 2014–17

Military spending figures are in constant (2016) US dollars.

Country ^a	Military expenditure (US\$ m.)			Debt as a share of GDP (%)		
	2014	2017	Change, 2014–17 (%)	2014	2017	Change, 2014–17 (%)
Algeria	9 545	9 684	1.5	7.7	18	131
Angola	6 110	2 372	-61	41	65	60
Azerbaijan	1 829	1 479	-19	14	46	222
Ecuador	2 947	2 413	-18	22	39	78
Iran	10 281	14 086	37	12	32	173
Iraq	6 956	7 284	4.7	32	64	99
Kazakhstan	1 475	1 184	-20	49	56	16
Kuwait	5 853	6 693	14	7.5	27	262
Mexico	6 514	5 533	-15	49	53	8
Nigeria	1 830	1 651	-10	12	21	71
Norway	5 821	6 330	8.7	28	33	17
Russia	59 929	55 327	-7.7	16	17	11
Saudi Arabia	85 435	69 521	-19	1.6	17	989
South Sudan ^b	569	59.5	-90	35	40	15
Venezuela ^c	535	261	-51

.. = not available; GDP = gross domestic product.

^a Country selection is based on 2 factors: (a) the availability of data on the budget for military spending, education and healthcare; and (b) the heterogeneous nature of oil dependence to capture high, moderate and low oil dependence based on oil rents as a share of GDP.

^b For South Sudan, as data for debt as a share of GDP in 2017 was unavailable, the data for 2016 was used instead.

^c Data on Venezuelan Government debt is unavailable for the years 2014–17; however, reports have suggested substantial increases in debt amid severe economic problems.

Sources: SIPRI Military Expenditure Database, May 2018; International Monetary Fund, World Economic Outlook Database, Oct. 2017; and International Monetary Fund, *Republic of South Sudan: Staff Report for the 2016 Article IV Consultation*, IMF Country Report no. 17/73 (IMF: Washington, DC, 28 Feb. 2017).

revenues was larger than their expenditure cuts. However, at 60 per cent, the average increase in their debt was much lower than that of the five states that increased their military spending.⁷

As the price of oil peaked in 2014, debt levels in the majority of oil-exporting countries reached record lows. After 2014, there were large increases in debt across regions and income groups. The data suggests that, irrespective of the degree of oil dependence or whether military expenditure went up or down, there was a clear inverse relationship between debt and oil price.

⁷ This average excludes Venezuela, for which no data on debt is available.

While the need to fund recurrent expenditure on the military no doubt contributed to debt accumulation, further impact can be attributed to payment for arms imports. Many of the countries with the largest increases in debt as a share of GDP also had substantial arms imports over the five-year period 2013–17 (e.g. Algeria, Kuwait and Saudi Arabia).⁸ The decision to maintain or, in some cases, increase military spending can also be related to the country's security situation. Some of the countries that increased military spending—such as Algeria, Iran, Iraq, Kuwait and Saudi Arabia—are either situated in regions with interstate or intrastate armed conflicts or engaged in those conflicts.

Saudi Arabia

The case of Saudi Arabia is of particular interest because it is an oil export-dependent country with an undiversified economy and it is actively involved in armed conflict. Despite the oil price crash in 2014, Saudi Arabia's military intervention in Yemen, its involvement in the conflict in Syria and its threat perception of Iran pushed its military expenditure to a record high in 2015 (see figure 4.3).⁹ A decrease in spending followed in 2016, as a result of the government's austerity measures, but expenditure started to rise again in 2017 because of unresolved conflicts in the region and new tensions with Qatar.¹⁰

As the price of crude oil dropped by 45 per cent between 2014 and 2017, Saudi Arabia's debt as a share of GDP increased by 989 per cent.¹¹ The immediate rise in Saudi Arabia's deficit to \$367 billion in 2015 was a direct consequence of the fall in oil revenue and the government's inability to finance its spending.¹² The government subsequently implemented a set of relatively successful financial reforms (e.g. it cut spending, introduced new taxes and encouraged economic diversification). This reduced the deficit to \$98 billion in 2016 and \$79 billion in 2017.¹³ A rise in the price of oil in 2017 also helped to ameliorate Saudi Arabia's finances.

The acute rise in indebtedness and the subsequent decline in the government deficit since 2015 suggests that Saudi Arabia looked for alternative sources of funding for its military spending—both from internal and external borrowing and from depletion of foreign exchange reserves. Although the growth in Saudi Arabia's debt cannot be solely caused by its military

⁸ See also chapter 5, section I, in this volume.

⁹ International Crisis Group, 'Yemen at war', Crisis Group Middle East Briefing no. 45, 27 Mar. 2015. See also chapter 2, section V, in this volume.

¹⁰ Soloman, E., 'Middle East tensions rise as Iran and Saudi Arabia jostle for power', *Financial Times*, 9 Nov. 2017.

¹¹ Unless otherwise stated, all spending figures are quoted in current US dollars.

¹² 'Saudi Arabia cuts 2016 budget deficit, to boost 2017 spending', Reuters, 22 Dec. 2016.

¹³ Bordoff, J., 'The Saudi Arabian reform slowdown and the oil price dilemma', *Financial Times*, 11 Sep. 2017.

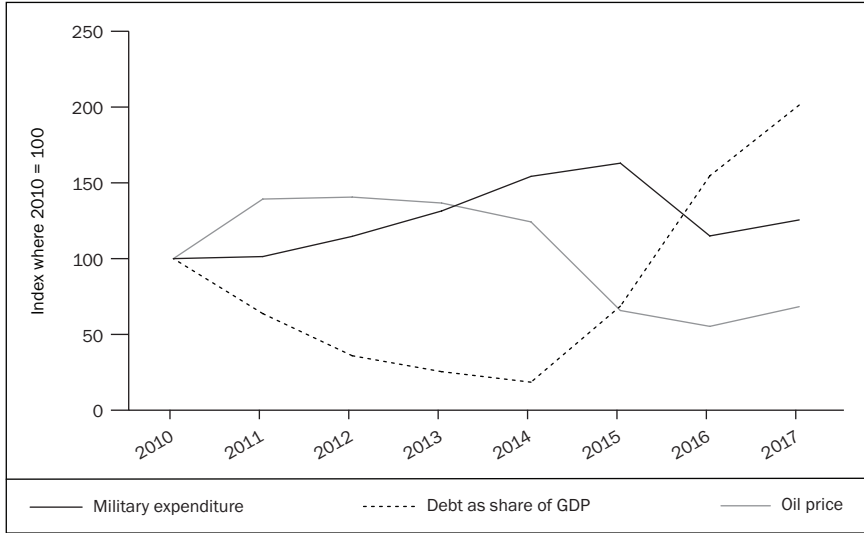


Figure 4.3. Military expenditure and debt as a share of gross domestic product (GDP) in Saudi Arabia compared with oil price, 2010–17

Note: The three lines in the graph represent indexes, with the values for 2010 set at 100 and the values for the other years showing relative difference from 2010. The time frame 2010–17 provides an indication of the trend before and after 2014.

Sources: SIPRI Military Expenditure Database, May 2018; International Monetary Fund, World Economic Outlook Database, Oct. 2017; and International Energy Agency, ‘Monthly oil price statistics’, various years.

expenditure, the strong positive correlation between military spending and the price of oil and the subsequent negative relationship with indebtedness suggest that Saudi Arabia used debt to fund part of its military expenditure. A separate study revealed a similar pattern in six other oil-rich Middle Eastern countries over the period 1988–2002, finding a causal relationship between military expenditure and external debt.¹⁴

The Saudi Arabian case indicates that armed conflict can potentially exacerbate the relationship between a low oil price and debt accumulation due to the choice to sustain high levels of military spending. The data on the 15 sample countries seems to support this argument (see table 4.5), as the growth in debt tends to be lower in countries where major armed conflict is absent: Ecuador, Kazakhstan, Norway and, as discussed below, Angola.

¹⁴ Smyth, R. and Narayan, R. K., ‘A panel data analysis of the military expenditure–external debt nexus: evidence from six Middle Eastern countries’, *Journal of Peace Economics*, vol. 46, no. 2 (Mar. 2009), pp. 235–50.

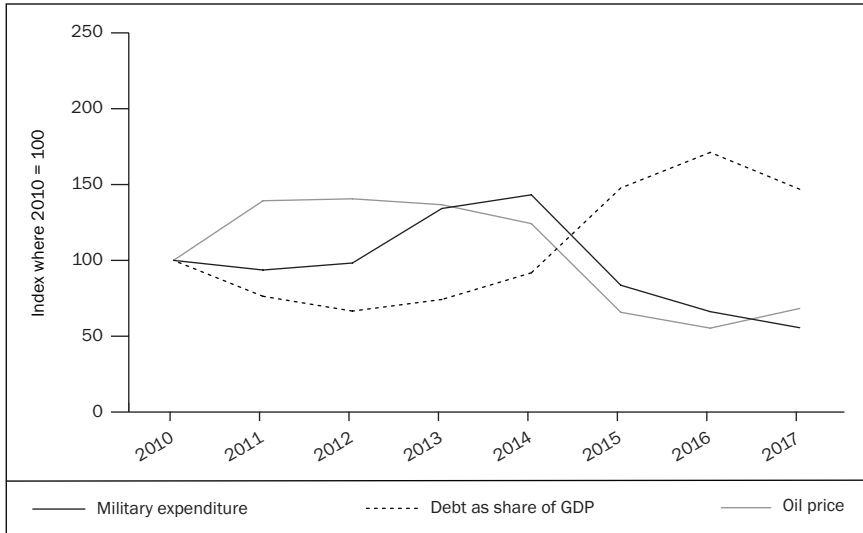


Figure 4.4. Military expenditure and debt as a share of gross domestic product (GDP) in Angola compared with oil price, 2010–17

Note: The three lines in the graph represent indexes, with the values for 2010 set at 100 and the values for the other years showing relative difference from 2010. The time frame 2010–17 provides an indication of the trend before and after 2014.

Sources: SIPRI Military Expenditure Database, May 2018; International Monetary Fund, World Economic Outlook Database, Oct. 2017; and International Energy Agency, ‘Monthly oil price statistics’, various years.

Angola

Angola is the second largest oil producer in Africa and has not been involved in any major armed conflict since the end of its civil war in 2002. The petroleum sector represents a third of its GDP and more than 95 per cent of its exports.¹⁵ The Angolan economy was thus heavily affected by the oil price crash in 2014. To cope with inadequate revenues, the government has been trying to stimulate other sectors of the economy and reduce public spending.¹⁶ Between 2014 and 2017 total government spending decreased by 48 per cent, while military expenditure shrank by 61 per cent. Unlike Saudi Arabia, where armed conflict demanded that the military budget be maintained, Angola had more leeway in reducing military spending to aid the economy’s recovery. However, even reductions in military and other expenditures could not prevent an increase in Angola’s total debt as a share of GDP between 2014 and 2017 (see figure 4.4).

¹⁵ World Bank, ‘The World Bank in Angola’, 22 Jan. 2017.

¹⁶ Muzima, J. and Gallardo, G., ‘Angola 2017’, African Economic Outlook, 2017.

Conclusions

The role of the price of oil as a significant driver of military and non-military spending by the governments of oil export-dependent countries cannot be overstated. When oil revenues fell, alternative forms of finance were required and found. Debt, either local or external, has become the common first option for many countries regardless of whether they have diversified economies, are developed or developing, or are involved in armed conflict or conflict-free.

The difficulty of quickly changing government budgets and the ability to easily find alternative sources of finance can explain why the low oil price levels in 2014 initially instigated only minor changes in military expenditure (in 2014 and 2015). It was only after rising debt levels led to a need to cut debt as a share of GDP that many oil export-dependent countries implemented austerity measures to cut expenditure, both non-military and military. However, the decrease in military spending did not always match the decrease in the oil price or oil revenue. In the 15 countries considered here, military expenditure between 2014 and 2017 fell by an average of 16 per cent, but the price of oil dropped by over 45 per cent, and the average increase in total debt as a share of GDP was around 154 per cent (see table 4.5).¹⁷ The difference between revenue (mostly oil revenue) and expenditure in these oil export-dependent countries was mostly funded through debt.

There has been a significant build-up of debt in many oil export-dependent countries following the oil price crash in 2014. Its consequences, while not yet fully assessed, could potentially be detrimental to the economic development of these countries. The above evidence suggests that military expenditure has played an active role in the debt build-up, and indebtedness from both recurrent military spending and arms imports will probably have a cumulative effect on overall debt through interest repayments. With research suggesting that a 1 per cent increase in military expenditure results in an increase of 1.1–1.6 per cent in external debt in the long run, reducing military spending will be particularly effective because such a reduction will generate a greater than proportional reduction in external debt with potential proportional decreases in overall debt.¹⁸

¹⁷ This average excludes Venezuela, for which no data on debt is available.

¹⁸ Brzoska, M., 'The financing factor in military trade', *Defence and Peace Economics*, vol. 5, no. 1 (1994), pp. 67–80; and Smyth and Narayan (note 14).