

Policy Perspective

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FISCAL MANAGEMENT OF OIL RESOURCES IN BOOMS AND BUSTS

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In a nutshell

- Sound resource management is crucial. There are huge costs associated with large and unpredictable swings in oil prices. If not well managed, the volatility can destabilise the domestic economy and undermine long-term growth. Resource-rich countries are therefore advised to adopt some type of fiscal policy framework (i.e., a spending rule), which, if operated counter-cyclically, should shelter the economy from oil price fluctuations and prevent over-spending on the part of the government.
- Drawing on resource rich Norway's experience, this paper explains how Norway effectively built up a savings fund, which, together with a fiscal spending rule, implied a gradually phasing in of oil revenues to the domestic economy. By spending only 4% of the Savings Fund every year, the sovereign wealth fund has grown and is today one of the largest in the world.
- Still, despite adopting a spending rule, the Norwegian economy has not been insulated from oil price fluctuations.

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In recent research, my colleagues and I show that fiscal policy in Norway has been procyclical with oil prices. The main reason is that the inflow to the fund has grown at a time when the oil price has been increasing. Yet, the return (take out) from the Fund has remained fixed at 4% of the Fund's total, implying more money to spend with higher oil prices. Thus, the problem is not having a rule pr. se, but that the rule has not been practised flexible enough.

- In line with this, the Norwegian government has recently revised the fiscal rule down from 4% to 3%. The government has also emphasized that the rule should be practised flexible, being more contractive in the booms, while still allowing for expansionary fiscal policy in the recessions.
- What about MENA countries? In a follow up paper, we show that government expenditures in many MENA countries seem correlated with business cycle fluctuations, also in those countries that have adopted a spending rule. Furthermore, fiscal policy seems mostly pro-cyclical in the commodity booms.
- From a policy point of view, the implications of our research findings are therefore of general interest since they highlight both the strengths and the weaknesses of the fiscal framework adopted in resource-rich economies.

About the author

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Introduction

Sound resource management is crucial. There are huge costs associated with large and unpredictable swings in oil prices. If not well managed, the volatility can destabilize the domestic economy and undermine long-term growth. Resource-rich countries are therefore advised to adopt some type of fiscal policy framework (that is, a fiscal spending rule), which, if operated counter-cyclically, should shelter the economy from oil price fluctuations and prevent over-spending on the part of the government.

Yet, the adoption of a rule does not automatically ensure that fiscal policy works to insulate the domestic economy from oil price fluctuations. In recent research, my colleagues and I use econometric models that control for different shocks and allow for some time variation to show that the constructed fiscal rule may be too lax over the commodity price cycle; the actual conduct of fiscal policy might not be in accordance with the rule, or fiscal policy may be conducted differently in booms and busts. Despite adopting a fiscal rule, fiscal policy is consequently conducted pro-cyclically in many resource-rich economies. Hence, what works in theory may not necessarily work in practice.

Simple correlations, however, may disguise the actual conduct of fiscal policy over the business cycle. Figures 1 and 2 illustrate this point; suggesting that the conduct of fiscal policy has changed from being mostly pro-cyclical in the past to more counter-cyclical recently. In particular, Figure 1 shows the positive correlation between the cyclical component

of real government expenditure and real GDP in the period 1960-1999. The Figure illustrates that it is in particular in the non-OECD countries (yellow bars) that fiscal policy has been pro-cyclical. Many of the non-OECD countries are resource-rich countries, however, some resource-rich OECD countries like Norway also observed pro-cyclical fiscal policy in this period. However, in the period 2000-2009, the picture improves somewhat, as now more countries, including resource-rich Norway as well as some resource-rich non-OECD countries, observe a more counter-cyclical fiscal policy (see Figure 2).

Similar results are also found in some recent panel data analysis addressing the role of fiscal policy in resource-rich countries. For instance, Céspedes and Velasco (2014) estimate the response in government expenditures and revenues to commodity prices in a large panel of commodity exporting countries over two different cycles, and find that fiscal policy has been less pro-cyclical in the recent commodity price boom. They argue that the changes have materialized as many countries have improved their institutional quality; i.e. they have adopted fiscal policy rules. This has allowed fiscal policy to be less expansionary when commodity prices increase and more expansionary when commodity prices decrease; i.e. counter-cyclical behavior.

Figure I. Country correlations between the cyclical components of real government expenditure and real GDP (1960-1999).

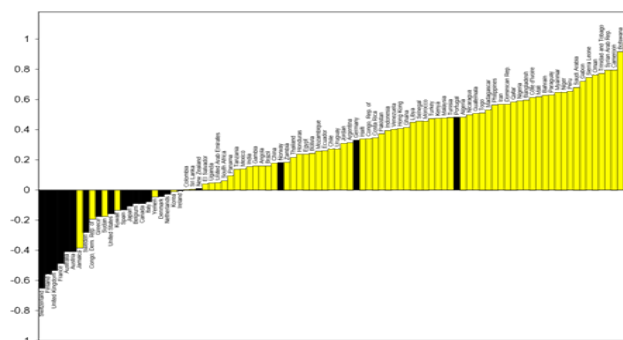


Figure 1. Country correlation between the cyclical component of real government expenditure and real GDP (1960-1999). Dark bars are OECD countries and yellow are non-OECD countries. The cyclical components are estimated using the Hodrick-Prescott Filter. A positive (negative) correlation indicates pro-cyclical (counter-cyclical) fiscal policy. Source: World Economic Outlook and International Financial Statistics (IMF).

Figure II. Country correlations between the cyclical components of real government expenditure and real GDP (2000-2009).

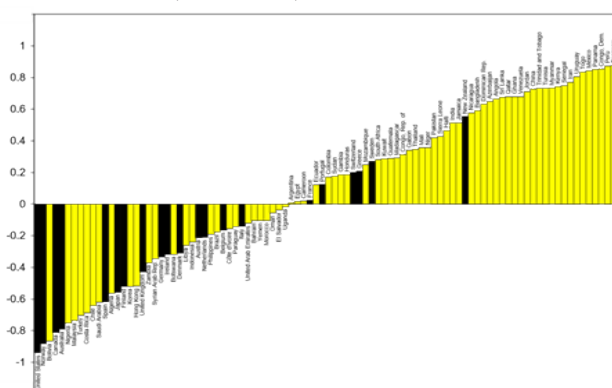


Figure 2. Country correlation between the cyclical component of real government expenditure and real GDP (2000-2009). See Table 1 for more details. Source: World Economic Outlook and International Financial Statistics (IMF).

Such analyses of fiscal policy in oil-rich economies, however, come with an important caveat: the price of oil has moved in tandem with global demand throughout the last decade(s). Hence, any changes in the response of fiscal policy to the oil price could be due to the growth in global demand in the last business cycles. And if global demand is an important source of variation in commodity prices, in particular in the recent commodity price boom, one should expect fiscal policy to be exactly counter-cyclical; not necessarily because the countries have reduced government expenditures relatively to GDP,

but simply because domestic GDP has increased with global demand.

Thus, and in line with these findings, when analyzing fiscal policy responses to oil price shocks, one should control for shocks to global activity. Previous studies addressing the role of fiscal policy in resource-rich countries, like the aforementioned studies, have typically ignored this issue. Furthermore, they have often found that fiscal policy is counter-cyclical in recent commodity booms.

In Bjørnland and Thorsrud (2015), we both control for global activity and allow the responses to change over time when analyzing the behavior of fiscal policy in Norway. In doing so we confirm that the counter-cyclical fiscal responses found in the recent oil price boom in many previous studies should be attributed to global activity shocks and their domestic propagation, rather than to the adopted fiscal framework. Related conclusions are also found in an ongoing project by Bjørnland et al. (2017) analyzing several MENA countries. I now turn to describe these studies in more detail, before providing policy recommendations.

Norway - Sovereign Wealth Fund and Fiscal Rule

In Bjørnland and Thorsrud (2015), we examine if fiscal rules work to shelter the domestic economy from oil price fluctuations. More specifically, the study analyzes fiscal policy's response in Norway to commodity price shocks over time and the extent to which this response has insulated the domestic economy from commodity price fluctuations or, conversely, exacerbated their effect. To account for the changing nature of economic conditions and complexity of fiscal rules, the study addresses this question by developing a time-varying Dynamic Factor Model (DFM), allowing the volatility of structural shocks, the systematic fiscal policy responses, and the macroeconomic conditions to change over

time. It is the first time fiscal policy has been evaluated in this way for a resource-rich country or for any country in general.

We focus on a particular country, Norway, whose handling of its petroleum wealth has often been described as exemplary (e.g. Velculescu (2008), among many others). Unlike most oil exporters, Norway has adopted a fiscal framework in 2001 with a view to shielding the fiscal budget, and therefore the domestic economy, from oil price fluctuations.

In particular, oil and gas revenue is first put in a savings fund, of which only the expected real return of the fund is drawn annually to finance public spending or tax cuts. Thus, in comparing how fiscal policy responds to oil price shocks before and after the rule's implementation, the study provides us with a natural experiment for assessing fiscal policy over commodity price cycles. Since the 2001 adoption of the fiscal rule, the GPF has developed rapidly and is today the largest sovereign wealth fund in the world, with a value close to 300 percent of GDP in Norway (2017). This notwithstanding, very little is actually known about how, or indeed if, such a rule manages to shield an oil economy from oil price fluctuations, as theory predicts.

When analyzing fiscal policy responses to commodity price shocks, we build on Bjørnland and Thorsrud (2016), which analyzes spill overs between the resource-rich and non-resource sectors in Australia and Norway, controlling for shocks to global activity. As discussed above, previous studies addressing the role of fiscal policy in resource-rich countries have typically ignored the issue of global demand, and instead treat oil prices as exogenous. They also ignore the interaction between the different sectors in the economy. Typically, they estimate the response in government expenditures and revenues to commodity prices in a large panel of commodity exporting countries over different cycles,

focusing on a few macro variables only.

Yet, if global demand is an important source of variation in commodity prices, in particular during the recent commodity price boom, one should expect fiscal policy to be exactly counter-cyclical; not necessarily because the countries have reduced government expenditures relatively to GDP, but simply because domestic GDP has increased with global demand.

And indeed, when controlling for global activity, allowing for spill overs between the resource and non-resource sectors, as well as allowing parameters to change, Bjørnland and Thorsrud (2015) confirm that the counter-cyclical fiscal responses found in the recent commodity price boom should be attributed to global activity shocks and their domestic propagation, rather than the adopted fiscal framework.

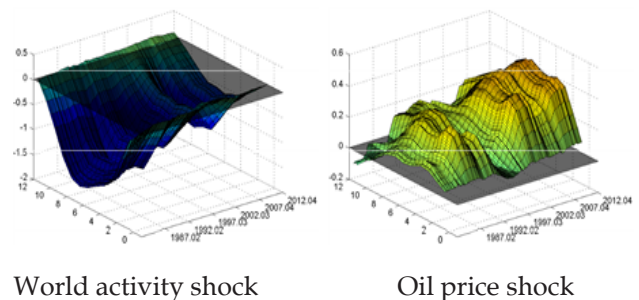


Figure III. Impulse responses. The figure reports the response, across time and horizons, of value added in the public sector relative to the response in the mainland economy (non-oil, non-public). A value above zero indicates that the public sector responds more positively to the given shock than the mainland economy as a whole. Source: Bjørnland and Thorsrud (2015).

Figure 3 graphs the main results. The figure reports the response, across time and horizons, of value added in the public sector relative to the response

in the mainland economy (non-oil, non-public). A value above zero indicates that the public sector responds more positively to the given shock than the mainland economy as a whole. The results emphasize that in the wake of oil price shocks (that are orthogonal to global activity), fiscal policy is pro-cyclical on impact and over response horizons. If anything, fiscal policy has been more (not less) pro-cyclical since the adoption of the fiscal policy rule in 2001, in absolute value and relative to GDP. Hence, taking everything else as given and following an oil price shock, the adoption of the spending rule has not meant that fiscal policy effectively insulates the economy from an oil price shock. Instead it has exacerbated the effects of oil price shocks on the economy.

However, following a global activity shock that also increases oil prices, the picture becomes somewhat more nuanced, with public spending being primarily counter-cyclical, although the counter-cyclical pattern declines somewhat towards the end of the sample. Thus, the strong counter-cyclical fiscal policy responses (relative to GDP) in the last boom, as reported by many authors such as Céspedes and Velasco (2014), among others, are therefore most likely due to global activity shocks and their domestic propagation, rather than fiscal policy governed by a rule.

Why has the fiscal rule not protected against pro-cyclical behavior in Norway? The main reason is due to the fact that the inflow to the fund has grown at a time when the oil price has been increasing. Hence, the return (take out) from the fund that has been fixed at four percent has been highly correlated with the oil price. Thus, the problem is not the rule per se, but that the rule has not been practiced flexibly enough. To deal with this, the government has now revised the rule down to three percent in 2017, and also emphasized that the rule should be practiced flexibly.

MENA Countries

In a more recent and ongoing study, rather than identifying periods of booms and busts and analyzing fiscal policy behavior (as in Céspedes and Velasco (2014)), in Bjørnland et al. (2017) we identify and analyze fiscal regimes directly. Focusing on the 20 largest oil-exporting countries, many of them in the MENA region, we ask: in which periods is the probability of finding contractionary or expansionary fiscal policy regimes high? And in doing so, is fiscal policy helping oil-exporting countries manage their resources well to minimize uncertainty?

To analyze these questions, we propose a new identification scheme based on expansionary and contractionary fiscal policy regimes. Furthermore, we use a Markov-Switching Vector Autoregressive (MS-VAR) model where we (weakly) identify these regimes based on intercept restrictions. Our model contains both fiscal and oil variables at quarterly frequency.

We find that government expenditures seem correlated with business cycle fluctuations for many MENA countries, independent of the adopted spending rule. Hence, there is evidence of pro-cyclical behavior. Furthermore, fiscal policy seems mostly pro-cyclical in the booms. Thus, despite adopting fiscal rules, the spending pattern of fiscal policy is often pro-cyclical over the business cycle. Still, there is large heterogeneity in volatility estimates across countries. Not all the countries are managing their natural resources so as to minimize uncertainty.

Policy Recommendations

The recent fall in commodity prices is an opportune moment to review how fiscal policy has been operated, and how, if necessary, it can be strengthened to manage resource wealth. As described above, the Norwegian Government Pension Fund Global

and the adopted fiscal rule have since 2001 implied a phasing-in of petroleum income and investment returns to the Norwegian economy. The idea is that transfers from the fund to the central government budget shall, over time, follow the expected real return on the fund. Significant emphasis is placed on evening out economic fluctuations to contribute to sound capacity utilization and low unemployment.

Although the fiscal rule adopted in Norway has not managed to shelter the Norwegian economy from oil price fluctuations, the goal of saving resource revenue for future usage has been accomplished. By only using roughly four percent of the savings fund every year, the Norwegian sovereign wealth fund is today the largest in the world.

Recently, the government has decided to strengthen the rule. At the inception of the fiscal rule, the government set the expected real rate of return of the Government Pension Fund Global (i.e. the take out from the fund) to four percent. From 2017, however, the government announced that the expected real rate of return would be reduced from four to three percent. Hence, the annual take out from the fund is reduced. Furthermore, the government emphasized that the rule should be practiced flexibly: increasing spending in busts, reducing spending in booms. This will prevent fiscal policy from becoming pro-cyclical over the business cycle. In accordance with this, the National Budget 2018 now implies a structural, non-oil deficit equivalent to 2.9 percent of the value of the Government Pension Fund Global.

From a policy point of view, the implications of our research findings are therefore of general interest since they highlight the strengths and weaknesses of the fiscal framework adopted in a resource-rich economy. In particular, while there is general agreement that resource-rich countries should save for the future and develop spending rules, the rule should be carefully specified so as to effectively

work to smooth the fluctuations in the domestic economy. In the case of Norway, the spending rule was too lax over the business cycle, and as discussed above, it has now been revised down to three percent.

Many other countries have also set up spending rules. For instance, in Chile, the fiscal rule is a savings rule based on the cyclically adjusted balance, while in Kuwait the rule states the transfer of 10 percent of government revenue to the Future Generations Fund. Oil-rich countries are encouraged to save for future rainy days, and spend according to fiscal rules. Yet, for the rules to effectively smooth certain economic attributes, such as oil price volatility, the rule must not be too lax over the business cycle.

For MENA countries, there is therefore much to learn from the Norwegian experience, both in terms of how to set up a sovereign wealth fund for rainy days and also how to implement a fiscal spending rule more flexibly to avoid pro-cyclical behavior of fiscal policy in booms and busts.

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