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OECD Economic Surveys: Mexico

Chapter 2

Managing the oil economy – Can Mexico do it better?

Fiscal policy is highly dependent on volatile oil income. The balanced budget rule can create a bias for spending oil revenues as they are earned, especially as transfers to the stabilization funds are limited by caps at low levels. This can potentially lead to a pro-cyclical bias in fiscal policy. Revenues have also been lower than they could have, if gasoline prices had adjusted with international prices instead of a price smoothing mechanism for the domestic price. The system also benefits mostly well-off consumers and has important environmental costs. To better manage budget cycles and oil wealth, Mexico should establish a structural deficit fiscal rule. To improve transparency oil revenues should be reported in gross terms in the budget. A price mechanism that leads to a closer alignment between domestic and international gasoline prices should be adopted and other energy subsidies eliminated and an energy excise tax introduced. To reduce dependence on oil revenues and prepare for the exhaustion of oil reserves, further tax reform is needed to cut exemptions and broaden the tax base. A rapid and adequate implementation of the reform of the state oil company is required to boost oil revenues, increase efficiency and investment in future exploration. While the recent reform passed by congress is expected to improve governance and allow Pemex to use performance based contracts, its implementation is key.

Mexico's challenges with oil revenues

Responsible handling of revenue from natural resources can be a source of wealth, economic growth and stability for a country. However, the volatility, uncertainty and exhaustibility of these revenues, and the fact that they largely originate from abroad, is a challenge to policy. Many oil producing countries have found it difficult to smooth government expenditure over time and decouple it from the short-term volatility of oil revenues leading to occasional boom-bust cycles. Thus in practice many countries have found oil to be more of a curse than a blessing. Despite the oil wealth, many oil-producing countries have a poor growth record (Gelb 1988, Fatas and Mihov 2003).

Resource-rich emerging economies are increasingly using fiscal rules to help manage public finances (Box 2.1). Properly designed rules can have large benefits in terms of

Box 2.1. **Mexico, Chile and Norway: Different ways to deal with resource revenues**

Norway – The Government Pension Fund.

Oil and gas exports were over 20% of GDP in 2007 with a substantial impact on public finances. All revenues from the petroleum sector are channeled directly into the Government Pension Fund to isolate the government's budget from the volatility of oil prices and to save oil wealth for future generations, including providing for growing pension liabilities. The funds are invested abroad with the Ministry of Finance setting the guidelines, and the central bank doing the active management of the resources. Proceeds from the fund finance the non-oil structural budget deficit. This deficit is set at a level of expected long run real returns (4%) from the fund, which in recent years has corresponded to about 4-5% of GDP. The rule allows for active demand management in that the non-oil structural deficit target can be breached for countercyclical purposes. The assets of the Fund at end-2008 were about 125% of non-oil GDP, or 90% of total GDP.

The fiscal rule has had a positive impact on the economy and public finances. It has avoided a potentially destabilizing impact of highly variable export revenues on the exchange rate and demand on the mainland economy. As the fund holds its assets overseas, the currency flows generated from the offshore sector are automatically neutralized. However, the fund has been criticized for providing too much stimulus to the economy, as the 4% return is likely to increase over time along with the value of the assets, and that the savings generated are not sufficient to meet future pension liabilities (OECD 2008).

Chile – The Copper Stabilization Fund

The copper sector is a dominant part of the Chilean economy with about 50% of exports and 8% of GDP. Public sector revenues from copper have varied between 5-17% of total tax collection. The sector consists of a state-owned Codelco, and a number of private operators with about 30-70% of output respectively.

Box 2.1. **Mexico, Chile and Norway: Different ways to deal with resource revenues** *(cont.)*

A fiscal rule was established to smooth fluctuations in copper revenues and related spending in the budget. Chile has a fiscal rule that defines a structural surplus at a certain level, which in recent years has been 0.5% to 1% of GDP. The surplus target was set so that enough savings can be accumulated to finance future public commitments, in particular a guaranteed minimum pension and old-age benefit, and recapitalization of the central bank. The surplus target is made of a non-oil structural surplus and estimated long-term copper revenues based on a reference price. When copper prices exceed/are below a reference price, that is assumed to reflect a medium-term equilibrium price for copper, revenues are transferred to and from the copper fund. The Government is also authorized to transfer 10% of CODELCO-sales to military procurement.

The reference price and the potential output used for the deficit rule are estimated by independent expert panels. The members represent academia, the financial and the mining sector. For copper, the experts submit their reference price projections for the next 10 years, which is then averaged to get the reference price for the budget each year. The resulting prices have been conservative in view of the commodity boom of recent years, resulting in large savings of about 12% of GDP at end 2008 even after paying off public debt.

These rules have enhanced transparency and discipline in fiscal policy. As automatic stabilizers are small, the fund has enabled Chile to conduct counter cyclical fiscal policy in downturns, when access to foreign credit has become more expensive, as in the current crisis. The fund has been successful in reducing output volatility (Larrain-Parro 2008, Fiess 2002, Rodriquez *et al.* 2007), and has made Chile one of the few emerging markets able to conduct strong counter-cyclical fiscal policies (Perry *et al.* 2008).

Mexico – The Oil Stabilization Funds

Oil accounts for about 5-6% of GDP, 10-15% of exports and 30-40% of fiscal revenues. The sector is dominated by state-owned Pemex, which is responsible for production, distribution and imports of oil and gas products. The central bank buys all foreign exchange from Pemex, and limits the currency inflow to the economy to reduce pressures on the exchange rate from oil revenues (OECD 2007).

Three Mexican oil revenue stabilization funds – for the Federal Government, PEMEX and State Governments – the first was established in 2000 and the other two in 2006 to reduce oil-related volatility in the budget. This reflected the desire to avoid unplanned budget cuts if prices declined, as was the case in the aftermath of the Tequila crisis in the mid 1990's. The rules of the funds were refined in the 2006 Fiscal Responsibility Law, and again in the 2009 budget. The Law also included provisions for setting a reference price for oil and transfers to the funds. The Federal Government fund is managed by the Ministry of Finance, and has a target level for savings, which was 56 billion pesos (0.5% of GDP) in 2008. The law envisages that 40% of excess revenues are allocated to the Federal Government fund, and 25% to the PEMEX and State Government funds each, for total savings of 90%, with the remaining 10% being transferred to states for investment. Once the funds have reached their limit, 75% of excess revenues are allocated to investment, and 25% to a Fund to Support the Restructuring of Pension Systems. The target savings level was almost doubled in the budget for 2009. Before transferring excess revenues to the funds, however, some items are deducted (shortfalls inrevenues with respect to the budget, changes in energy costs that are not fully reflected in domestic electricity tariffs, costs of natural disasters and outlays resulting from changes in non-programmable expenditures due to changes in interest or exchange rates). At end-2008 the funds' cumulative reserves were 145 billion pesos or 1.2% of GDP.

Box 2.1. **Mexico, Chile and Norway: Different ways to deal with resource revenues** *(cont.)*

In contrast to Chile and Norway, the Mexican funds have accumulated limited savings due to the caps on their size. While all government oil revenues in Norway and excess revenues in Chile are channeled into the funds, the net accumulation in Mexico has been much smaller. Although excess revenues have been potentially large, low caps on the accumulated savings in the funds have led to a significant proportion of the excess revenues being spent on investment projects.

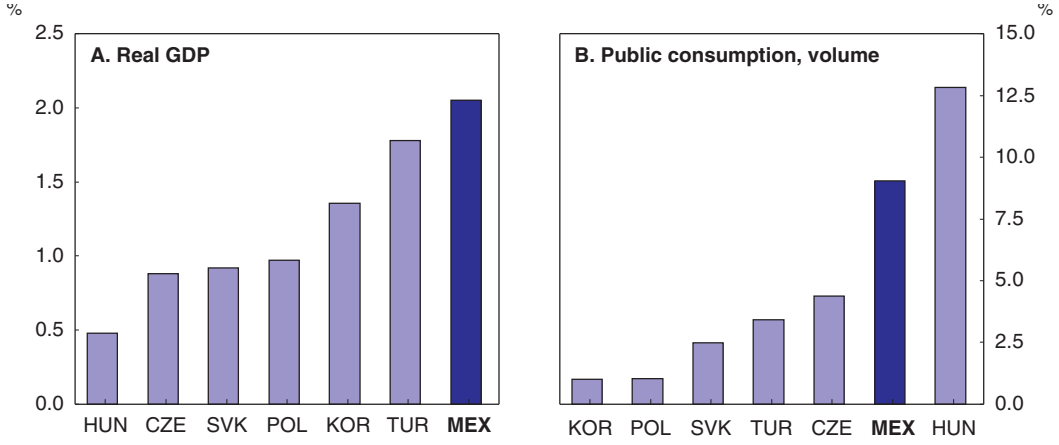
reduced volatility, inter-generational equity, building buffers for bad times, policy credibility, and sustainability of priority expenditures. (Kopitz *et al*. 2004). The rules should be transparent, make economic sense in view of a country's circumstances, and simple to understand and monitor. It is also important to make the breach of fiscal rules costly. The rules can be particularly useful in allocating spending in countries that may be subject to political bias.

Mexico is facing many fiscal policy challenges from its oil wealth, and has adopted fiscal rules to help in its management. However, the current rules – the balanced budget rule, excess revenues allocation rules and capped savings in the stabilisation funds – do not mitigate volatility of spending and revenues as much as might be desired. In addition, revenues have been smaller than they could have been due to the existence of inefficient energy subsidies and a price smoothing mechanism for gasoline prices. Longer term fiscal sustainability is also a concern as the budget relies heavily on oil revenues, which are set to decline in the future. Even though past underinvestment by the oil company has been reversed since 2005, an expedite and adequate implementation of the energy sector reform approved in 2008 is necessary to promote additional increase in investment as well as technology transfers. In the near term, Mexico needs to deal with these challenges – volatility, efficient use of oil revenues over time, and preparing for a time period after oil resources are depleted. Building on previous *Surveys* (OECD 2007), this chapter discusses how Mexico can deal with these challenges.

Dealing with volatility

The current fiscal framework has led to limited smoothing of the impact of revenue volatility on public expenditures. The volatility of public consumption and GDP in Mexico are high compared to other OECD emerging markets (Figure 2.1), and expenditure to GDP ratios have moved along with revenues. (Figure 2.2). Volatility can have high costs. It tends to be negatively correlated with investment ratios, can lead to short-term bias in fiscal policy, and destroy human and physical capital during deep recessions, so strengthening the mechanisms in the budget to limit expenditure volatility is desirable. Poverty and education outlays can also be adversely affected (Serven 2007). Volatility can be smoothed by a more gradual injection of oil revenues to the economy, particularly by increasing the caps on the stabilization funds. This would have the additional benefit of counting with a larger fiscal cushion in economic downturns, as debt-financing of larger deficits can be costly amid a general rise in perceptions of risks. Reforming the fiscal rules to reduce volatility is thus an important challenge.

Figure 2.1. **Volatility of GDP and public consumption**[1]



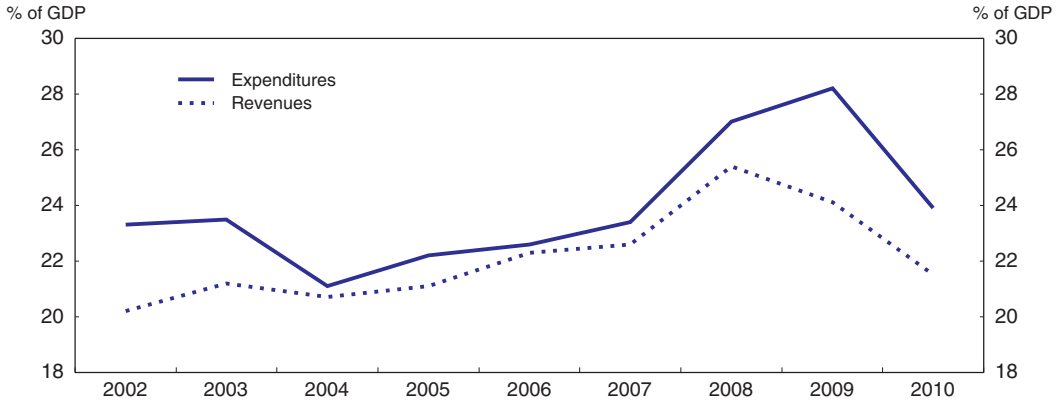
1. Measured by the coefficient of variation of real GDP and public consumption during 1995 Q1-2008 Q2 period.

Source: OECD, National Accounts.

StatLink http://dx.doi.org/10.1787/683877642883

Figure 2.2. **Mexico: Revenues and expenditure** [1]

As a share of GDP



1. Includes the traditional budget and financing operations. Gasoline subsidies recorded as spending and oil revenues in gross terms. LP and electricity subsidies not included.

Source: SHCP.

StatLink http://dx.doi.org/10.1787/684024020585

Mexican fiscal rules

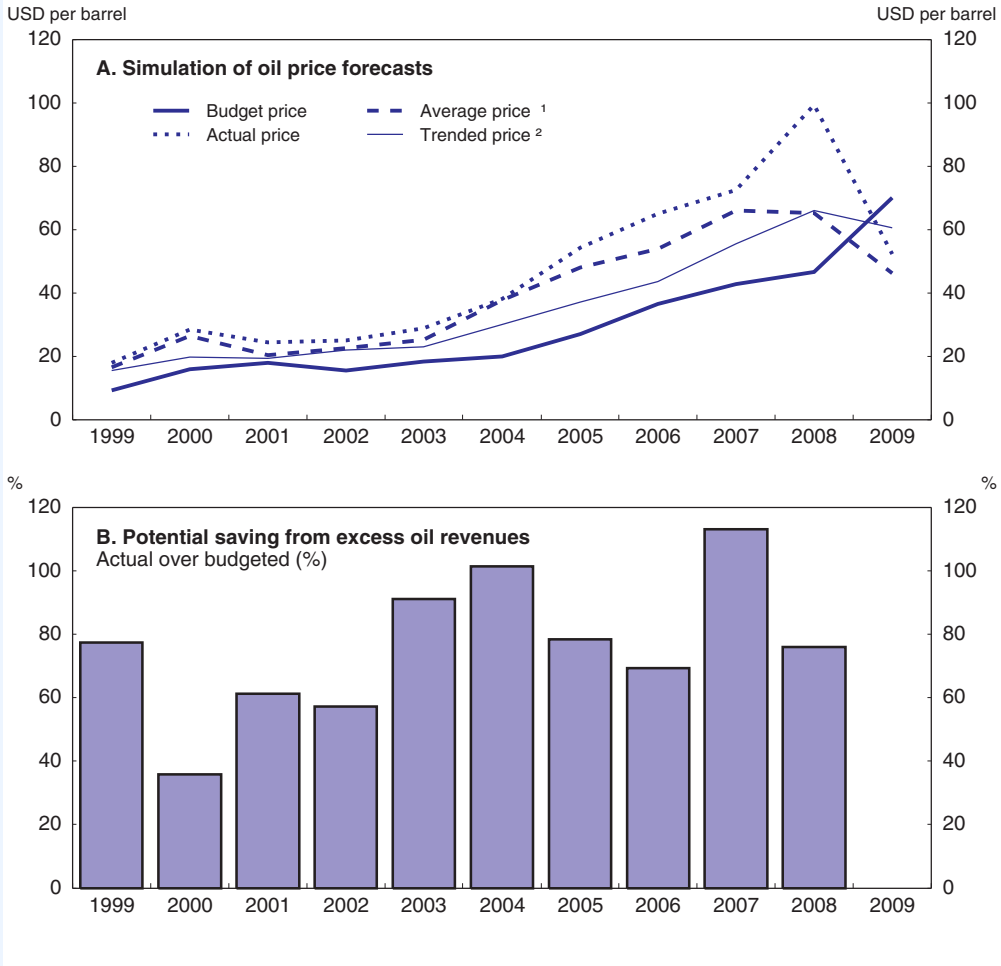
A basic pillar of Mexico's fiscal policy is the balanced budget rule, aimed at ensuring fiscal sustainability. The rule applies to the "traditional budget" part of Mexican fiscal deficit, as lending operations are outside its scope (see Chapter 1). It has been successful in establishing fiscal discipline and reducing gross public debt to about 40% of GDP after it had ballooned following the Tequila crisis in the mid-1990's. On the other hand, the rule has a pro-cyclical bias from one budget exercise to the next as larger tax revenues tend to be spent at the time they are collected. From the point of view of oil revenues, it might also be possible to improve on the formula that is used to approximate for the "structural" level of oil prices.

Mexico has tried to smooth revenue volatility by establishing stabilization funds. In principle, oil revenues that exceed the annually set reference price are transferred to the

Box 2.2. **Oil price projections in the budget**

Until recently oil price forecasts used in Mexican budgets over the years have been conservative compared either to those obtained by other methods (moving average, long term trend (HP filter) or actual prices (Figure 2.3). While conservative price setting is a prudent fiscal practice, it is important that it is complemented with large limits in the oil stabilization funds to make sure that a larger amount of resources are available when needed. Since 2000 actual oil prices have been substantially higher than those projected in the budget (Figure 2.3). While it is difficult to project oil prices given the large volatilities in world oil prices in recent years, this underlines the importance of transparent and clear rules for using excess revenues in the budget.

Figure 2.3. **Simulations of oil price forecasts in Mexico and actual prices**



1. Moving average of the last three years and one-year-ahead futures price.
2. Using a Hodrick-Prescot filter.

Source: OECD, SHCP.

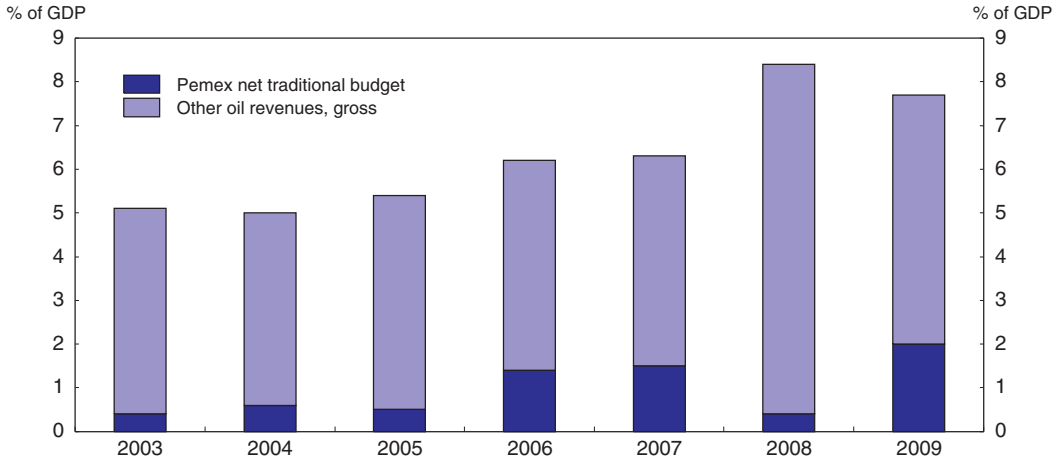
StatLink http://dx.doi.org/10.1787/684108613501

funds. However, despite the quadrupling of oil prices in recent years the funds have accumulated low savings – the balance at end 2008 stood at 1.2% of GDP (Box 2.1). This reflects both the low accumulation limits set to the funds-about 1.2% of GDP or 145 billion pesos in 2008-, the use of excess revenues to additional investments that are carried out once the funds have reached their limits, and the deductions from these revenues to compensate for revenue shortcomings from other sources, and electricity price support. As a result, volatility of spending has remained.

Before the current framework was in place, setting the reference price had been a complex process reflecting the difficulty of forecasting future oil prices. Until 2006 the price was negotiated and tended to remain consistently well below actual prices in a context of increasing international prices. Formulas based on moving averages or model predictions, which are used by a number of other oil producers, would have resulted in higher prices, even though it is clear that these are affected by the rising trend that was observed *ex post* (Box 2.2). The 2006 Fiscal Responsibility Law introduced a formula for the reference price, basing it on a weighted average of past and future medium-term price trends and short-term futures prices. The functioning of the new formula is still being tested, but the equal weight given to the short term trends tends to bias the reference price towards the prevailing market price (upwards until recently).[1] For example, in 2009 the formula produced a price of USD 70 (it was set before the collapse of prices in late 2008).

A reform to the fiscal rule approved in 2008 exempts Pemex investment spending from the balanced budget provision. While these investments have always been part of the broader fiscal deficit, until 2008 most of them were recorded in lending operations. As of 2009 the investment outlays were included in the "traditional budget" part of the deficit, but outside the balanced budget rule. This budgetary practice has contributed to revenue and spending volatility under the balanced budget rule, as Pemex revenues tend to move with oil prices, while its current spending is more stable. Thus, for example, in 2006 and 2007 the net impact of Pemex in the traditional budget was about 1.5% of GDP, which enabled correspondingly higher spending under the balanced budget rule (Figure 2.4 and Table 2.1).While this may have enabled financing higher social spending in boom years, a severe downturn in oil prices can rapidly lead to financing problems and cuts in programs.

Figure 2.4. **Oil revenues in the budget**



Source: Ministry of Finance and PEMEX.

StatLink http://dx.doi.org/10.1787/684136705275

Table 2.1. **Mexico: Oil-related fiscal indicators (per cent of GDP)**

	2003	2004	2005	2006	2007	2008
Budget	–0.6	–0.2	–0.1	0.1	0.0	0.0
Fiscal balance (budget + net lending)	–2.4	–0.4	–1.1	–0.3	–0.7	–1.0
Oil related indicators						
Pemex revenues	2.3	2.2	2.0	3.1	3.3	3.0
Pemex current spending	2.0	2.0	2.0	2.1	1.9	2.1
Pemex net budget	0.4	0.6	0.5	1.4	1.5	0.4
Pemex net (incl. inv.)	–0.5	–0.3	–0.2	0.5	0.6	–0.1
Other oil revenues	4.7	4.4	4.9	4.8	4.7	7.7
Oil total	7.1	6.7	6.9	7.9	8.1	10.7
Tax/price support on oil consumption (IEPS)	1.2	0.6	0.2	–0.4	–0.4	–1.8
Budget less Pemex	–1.1	–0.6	–0.3	0.6	0.7	–0.1
Fiscal balance less Pemex	–1.9	–0.1	–0.8	–0.8	–1.4	–1.0
Revenues*	21.2	20.7	21.1	22.3	22.6	25.4
non-oil	14.1	13.6	13.7	14.0	14.4	14.7
oil	7.1	6.7	6.9	7.9	8.1	10.7
Expenditure	23.5	21.1	22.2	22.6	23.4	26.5
Non-oil balance	–9.5	–8.0	–8.7	–8.7	–8.9	–10.9
Underlying non-oil balance	–6.8	–6.1	–5.9	–6.1	–7.3	–9.2
Underlying balance	–3.3	–2.1	–0.8	–0.8	–1.4	–3.2

* reported with gross oil revenues with the oil price support as part of expenditures (budget+net lending). Costs of LP and electricity subsidies not included.
Source: SHCP, OECD estimates.

Reforming the fiscal rules

To smooth the injection of revenues into the economy Mexico should introduce a structural deficit rule that sets a limit for the cyclically adjusted non-oil fiscal deficit. This would smooth spending in line with growth, lead to automatic savings when oil revenues are high and the economic cycle is up, and automatic spending when the oil and non-oil revenues are low. Oil revenues would thus go to a fund that would gradually inject oil wealth into the economy and help to stabilize future short-falls. The structural non-oil balance would also facilitate assessment of the fiscal policy stance in the economy. By excluding oil revenues (mostly from abroad) and oil production associated expenditures, and other cyclically sensitive items, emphasis on a non-oil fiscal deficit would enable a clearer measurement of the government's discretionary fiscal decisions on domestic demand.

The level of the deficit could be linked to a certain level of net assets to GDP either in current or present value terms, or to structural measurements of income. However, the calculation of net assets and of structural income raises a number of challenges. In terms of net assets, present values require estimating the value of future streams of oil revenues, discount rates and the value of other government assets and liabilities. Structural income calculations require assessments of the elasticities of revenues to income and of the output gap. To ensure transparency and avoid political biases, these parameters could be estimated by an independent panel and monitored regularly, so as to keep the net financial position of the government stable. As oil wealth in Mexico is set to decline in the future this would require a gradual lowering of public debt over time and/or an increase in non-oil revenues to keep the structural deficit at a certain level. To avoid complications created by Pemex in the calculation of the non-oil structural deficit, it would need to be taken out of this measurement of the fiscal balance. Nevertheless, given the importance of Pemex it is

still important that full information is provided on the company and on the fiscal implications of its budget.

The impact on volatility of a rule base on net wealth would depend on how the relationship between the size of the deficit and net wealth is defined. As net assets, whether at current or present values, can be volatile especially with oil, the deficit target should be set for a number of years and adjusted only infrequently as in Norway or Chile. One could also look at the government's net assets over the past cycle (oil revenues, debt etc.). Another source of potential volatility for the target is the denominator, GDP. To avoid this, the literature generally recommends using non-oil GDP (Medas-Sakharova 2009). Mexico should consider this as well, although its non-oil GDP has been relatively steady at about 95% of GDP making this adjustment less important. As discussed later, the relationship between the deficit and a structural estimation is more straightforward.

Another option is to define a cyclically adjusted deficit as a sum of an estimate of a structural (permanent) component of oil revenues, in addition to the non-oil structural deficit. This is the method used by Chile (Box 2.1), and is similar to what the Mexican formula for the determination of oil prices tries to do. The size of the deficit can be set so that, for example, public debt would remain constant at a certain level. As this option requires estimating the reference price for oil in the budget, a review of the results that have been obtained with the formula that Mexican authorities use for determining the budget price is relevant. Oil revenues above the reference price would be transferred to a fund, which would be drawn upon when revenues fall below the reference price or when there is a need for discretionary fiscal stimulus in a downturn. Either method would require some estimates of future oil prices. This is complicated by the fact that prices of oil and many other commodities tend to be non-stationary – without a clear equilibrium level.[2] Rules based on non-stationary moving averages etc. can lead to continued accumulation/decumulation of revenues, instead of some smoothing over cycles. The reference price can also become a target of political influence. To ensure neutrality, expert panels estimate both the reference price and potential output in Chile, which are the basis for the structural balance calculations in the budget. Mexico uses a formula with both backward and forward looking components. Colombia, Ecuador, Nigeria, and Venezuela use reference prices based on moving averages. The attractiveness of either option would largely depend on the difficulty of estimating either the net asset position or the medium-term reference oil price.

To increase transparency in the use of oil revenues, the fiscal tables should report oil income on a gross basis (Box 2.3), and the various adjustments to the oil price before transfers to the stabilization funds should be eliminated and included as spending in a normal budget process.

Spending of oil revenues-efficiency and timing

Countries with exhaustible natural resources need also to decide how to share the revenues between generations. An important factor in determining whether spending today versus in the future is desirable is the state of development of a country or the nature of public assets and liabilities. Emerging countries may want to favour current spending as investing in education or infrastructure can have high pay-offs in terms of future growth. More mature economies may be better off in saving, for example, for increasing future pension liabilities.

Box 2.3. **Mexico – Accounting issues with oil revenues**

Assessing the role of oil in the budget requires some adjustments to both revenues and spending as oil revenues are currently reported on a net basis. Despite the increase in oil prices from about USD 30 to USD 140 per barrel between 2006 and 2008 (or from USD 53 to USD 84 in annual averages) reported oil revenues in the budget have been relatively stable and increased only slightly. Although this is partly due to declining production volumes– oil production is down by about 20 per cent from its peak in 2006 – and an appreciation of the real exchange rate during the period, it also reflects the foregone revenues associated with the gasoline price smoothing mechanism as domestic prices deviated from their international references, with gasoline imports being paid at international prices. To better understand the sources and uses of income and macroeconomic effects of the oil economy, oil revenues should be recorded in gross terms and energy price support as expenditure. This could also reveal a higher volatility of oil revenues than reported in the budget numbers in recent years.

In Mexico it seems both efficient and fair that the current generation spends part of the revenues to finance development. Therefore, there is a delicate balance between saving for smoothing the injection of the revenues over time and having a cushion for counter-cyclical fiscal policy, and using part of the resources for development. Mexico's social investment needs are substantial in education and health (Chapter 3). Similarly, growth-boosting public investments are needed in infrastructure (Chapter 4). However, for these growth dividends to materialize it is important to spend the money in an efficient way on high quality projects.

While the oil wealth has helped finance many important investments in Mexico, it is important to improve the efficiency of spending. One example is the gasoline price smoothing mechanism and energy subsidies (see Box 2.1). Gasoline prices are kept stable in real terms which led to foregone income from 2006 to 2008 as the international price increased (Table 2.2). When world oil prices are above USD 40-45 per barrel (at current exchange rates) the Mexican price mechanism requires a subsidy, while there is a tax when prices are below this level. LP gas and electricity prices faced by households benefit from straight subsidies. The cost of the former is borne by Pemex in lower revenues, and the latter is financed by the state electricity company. In 2008 these three types of subsidies cost the budget about 2.7% of GDP, in addition to potential lost excise revenue (Table 2.3).

While keeping energy prices stable may have stabilized energy demand and helped contain inflation during the recent commodity boom, this policy has led to inefficient and unequal spending in a country with substantial social challenges. For example, the cost of the regressive energy subsidies and gasoline price smoothing mechanism in 2008 was more than twice the amount spent on anti-poverty programmes and 1.4 times the health budget. Most of the subsidy is captured by the better-off that tend to buy most gasoline and

Table 2.2. **Mexico: Gasoline prices in international comparison (pesos per liter)**

	2005	2006	2007	2008	2009 (Jan-Feb)
Mexico (regular)	6.3	6.6	6.9	7.3	7.7
US (regular)	6.4	7.3	8.0	9.3	7.0
France (premium)	19.0	17.4	18.7	21.8	22.5

Source: SHCP, Pemex, Eurostat.

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Table 2.3. **Energy subsidies in Mexico (% of GDP)**

	2002	2004	2005	2006	2007	2008
LP gas	0.0	0.1	0.1	0.0	0.1	0.2
Electricity	0.6	0.6	0.7	0.6	0.6	0.7
Gasoline (IEPS)	–1.2	–0.6	–0.2	0.4	0.4	1.8
Total	–0.6	0.1	0.5	1.1	1.2	2.7

Source: SHCP.

electricity (Chapter 1). The policy also distorts resource allocation by reducing incentives for energy saving investment, and contributes to congestion and burning of hydrocarbons, with detrimental effects on greenhouse gas emission and climate change.

To increase the efficiency of spending, the stabilization scheme for the gasoline price should be replaced with a mechanism that aligns domestic with international prices together with an excise tax, and other energy subsidies removed. Although the price stabilization scheme turns to a tax when prices are low (as in early 2009), it would be more efficient to let prices move in line with market prices and impose an excise tax on gasoline.[3] This would better deal with environmental costs, promote a sustainable use of energy resources and bring additional revenues for the government. There is a strong likelihood for the need for more subsidies under the current scheme as world oil prices recover. More vulnerable groups can be better protected from higher energy costs by targeted income support. During the transition period any gasoline price support should be reported as part of expenditure instead of a negative tax in the current budget, and the other energy subsidies reported explicitly as expenditure.

Preparing for a world with less oil resources

Tax reform is also needed to reduce dependence on declining oil revenues

The budget relies heavily on volatile and uncertain oil income – 30-40% of total budget revenues – that are set to decline with the shrinking oil production. Even though the recently approved fiscal reform increased non-oil tax revenues, these are still low by any standard at about 10% of GDP, reflecting a plethora of exemptions. The large size of the informal sector, which many observers estimate at 25-40% (EIU 2008, IMF 2007), also reduces the tax base. Efforts at reforming the tax system have been difficult, as the abundance of oil income, especially in recent years, has reduced political incentives for increasing other taxes. The narrow tax base and the volatility of oil revenues are a risk for future fiscal sustainability when oil prices and production are declining and can make it difficult to sustain funding for important social programmes.

The authorities initiated a tax reform in 2007 to gradually broaden the base for non-oil taxes (see OECD 2007) and make the economy less dependent on oil revenues. The measures also aimed at improving tax collection and reducing exemptions. One important step was the introduction of an alternative minimum income tax (IETU) aimed at bringing smaller enterprises to the tax net from the informal sector. To increase incentives for reporting and to capture resources from the informal sector of the economy, the package included a tax-deductible contribution on monthly deposits made in cash above a certain minimum amount. Deposits through other means such as checks or electronic transfers are not subject to the contribution, and by being tax-deductible the contribution on cash deposits does not affect formal businesses that are reporting adequately. More time is

required to evaluate the full effects of the reform. The IETU tax collection in 2008 was only about two thirds of the target, though some of this might have been due to the slowdown in activity, and the fact that some of the collection from the tax was reflected in higher income tax revenues.[4] The government is well aware of the need for further tax reform to replace declining oil revenues over time, and it should undertake action as early as when the budget for next year is submitted to Congress in September 2009. The announcement of no tax cuts in the January 2009 stimulus package is welcome.

The recommendations in the *2007 Survey of Mexico* on further tax reform remain valid. This should include measures to curtail exemptions that currently erode the tax base, in particular on direct taxes in terms of various preferential regimes and tax deductions. The tax base can also be increased by broadening the VAT tax, for example by reducing zero-rating of certain items. The collection threshold can also be increased to enhance compliance and tax control.

An expedite and adequate implementation of the reform of Pemex is needed to improve the efficiency of the oil economy and maximize oil income. Additional reform should be considered if necessary

Pemex is an important but declining part of the Mexican economy. It accounts for about 5% of GDP and 15% of exports. Mexico is also an important player in the world oil economy—it is the 6th largest producer with 5% of world gas and petroleum output in 2006. However, the sector is shrinking as production and proven reserves are declining. As a consequence of higher domestic demand, oil exports have dropped even faster and imports of refined products increased. PEMEX estimates that there are only 8-9 years of oil reserves left in the currently operated oil fields at today's production levels. Geological surveys point to potentially large, untapped reserves extending production for another 9-10 years, but their assessment would require substantial investments. An equal amount of reserves are estimated to lie in deep waters, which Mexico, previously to the Pemex reform, was unable to access for lack of funds, technology or expertise.

To revamp the oil sector, an adequate implementation of the Pemex reform is urgently needed. Pemex is state owned by constitution and beset with political interference and strong unions that have resisted reform in the past (Walton and Guerrero 2006). The decline in production and proven reserves reflects low efficiency, weak governance, and underinvestment in both up- and downstream and maintenance and insufficient refining capacity. As a result Mexico may soon become a net importer of oil (IMF 2009)-oil imports already account for about three quarters of oil exports. Much of this reflects politicization of management decisions (Pemex is part of the federal budget) and reliance on the government with many competing objectives for financing its investment needs. If adequately implemented, the approved reform should contribute to the resolution of these problems as it aims at strengthening corporate governance and it excluded Pemex's investment from the balanced budget rule.

In October 2008 the Mexican Congress passed a highly overdue reform for the petroleum sector addressing some of these issues. The main elements of the reform relate to improving governance, as well as allowing for the establishment of performance based contracts. Both the Director and the Board were given increased control over funds and investment decisions that previously required congressional approval. The Board also has the option to use some of the revenue surplus, approve changes to the PEMEX-budget and decide on the operational use of resources, without congressional approval. This could be

important, as strategic decisions often have to be taken quickly, as petroleum search and extraction equipment are scarce, and in high demand. The appointment of four independent Board members in addition to the current 11, who are mainly representatives from the Government and the union, should reduce political influence. PEMEX financing possibilities and corporate governance will be improved through the issuance of citizen bonds. Although its high existing debt may limit borrowing, introduction of the bonds can make a precedent for taking on board the concern for returns by investors. The reform also introduces more flexibility for contracting, including the possibility to use performance bonuses for subcontractors which could potentially lead to a significant increase of investment in the sector.

The reform might nevertheless not be enough to reverse the decline in production, and results will not be observed immediately. The strict exclusion of all foreign ownership of oil reserves or any other basic petrochemical activities by the constitution implies that equity joint ventures between Mexico and other oil companies, including with other nationalized companies, are explicitly excluded. This makes Mexico's petroleum sector a relatively closed one. It will also need creative solutions on how to attract funds with various incentive schemes not to breach the constitution.

Concluding remarks

Mexico has been successful in improving fiscal sustainability, but it could do better in managing its oil wealth. Volatility of revenues from one budget exercise to the next, as oil cycles tend to coincide with business cycles, and more efficient use of oil revenue gains remain important challenges. In addition, Mexico has to get ready for lower oil revenues as production is in rapid decline. To deal with these challenges, Mexico should introduce a structural non-oil deficit fiscal rule based on keeping net wealth at a certain level relative to net public assets or based on structural measures of both oil and non-oil income. Scrapping the inefficient and regressive energy subsidies and adopting a mechanism for

Box 2.4. **Key recommendations**

Adjust the fiscal framework to reduce the pro-cyclicality of the fiscal balance and make better use of oil revenue

- Replace the nominal balanced budget rule by a limit on the non-oil structural deficit, so as to improve short-run stabilisation policies and smooth the injection of oil wealth into the economy.
- Regularly review the limit for the non-oil structural deficit, so as to stabilize the net financial position of the public sector.
- Report energy subsidies and price smoothing opportunity cost as expenditure (not as a negative tax currently).
- Establish a mechanism that guarantees that gasoline prices do not deviate from their international reference, which can be easier now when prices are low. Replace the IEPS (stabilization tax/subsidy) with an excise tax.
- Continue tax reform to make the budget less dependent on oil revenues by enlarging the base (see 2007 Survey for more details).
- Implement and continue PEMEX-reform to improve incentives for private sector participation in exploration, transport and refining.

the determination of gasoline prices that ensures that no large deviations arise between domestic and international prices would release revenues for social and infrastructure investments with large future pay-offs. The non-oil tax base should be broadened, and the reform of Pemex should be implemented as quickly as possible, and if need be deepened, to increase exploration and improve efficiency of the company.

Notes

1. The formula gives 25% weights to the average price for past 10 years, 25% to the average futures price for the next 3 years and 50% for the futures prices of the next few months adjusted by a factor of 0.86. In the 2009 budget the calculation resulted in USD 36, USD 105 and USD 90 for the three components with an average price of USD 70.
2. Unit root tests on both oil and copper confirm non-stationarity.
3. The IEPS (gasoline tax/subsidy) used to yield revenues of 1-2% of GDP in the early 2000's but in recent years the maintenance of the gasoline price well below world prices has resulted in subsidies or low tax incidence.
4. The IETU is a minimum tax associated with the corporate income tax. Therefore, some firms which were required to pay IETU might have decided to pay a higher income tax to consolidate with parent companies abroad.

Bibliography

EIU (2008), Country Profile Mexico, London.

Fatas, A. and I. Mihov (2003). "*The Case For Restricting Fiscal Policy Discretion*,"*The Quarterly Journal of Economics*, MIT Press, Vol. 118(4), pages 1419-1447, November.

Fiess, N. (2002), Chile new fiscal rule, Office of the chief economist, World Bank.

Gelb, A. (1988), Oil Windfalls: Blessing or Curse? New York; Oxford University Press.

IMF (2007), Article IV consultation for Mexico 2007, Staff Report, Country Report No. 07/379.

IMF (2009), Article IV Consultation for Mexico 2009, Staff Report, Country Report No. 09/53.

Kopitz *et al*. (2004), Rules-Based Fiscal Policy in Emerging Markets. Background, Analysis and Prospects, Edited by *George Kopits*, Palgrave Macmillan.

Larrain, P and F. Parro (2008), Chile menos volatile, El trimestre economico, Vol. LXXV (3), No. 299, Julio-septiembre de 2008, pp. 563-596.

Medas P. and D. Sakharova (2009), *A Primer on Fiscal Analysis in Oil-Producing Countries, IMF* Working Paper No. 09/56.

OECD (2007), *OECD Survey of Mexico,* Paris.

OECD (2008), *OECD Survey of Norway*, Paris.

Perry G. (2008), Fiscal policy, stabilization, and growth: prudence or abstinence? edited by Guillermo E. Perry, Luis Serven, and Rodrigo Suescun, World Bank.

Rodríguez, J., C. Tokman and A. Vega (2007), Structural balance policy in Chile, OECD, *Journal of Budgeting*, Vol. 7(2), pp. 59-92.

Serven L. (2007), "Fiscal rules, public investment, and growth," Policy Research Working Paper Series 4382, World Bank.

Walton M., I.Guerrero and Lopez Calva (2006), "The Inequality Trap and its Links to Low Growth in Mexico". Paper presented at World Bank-Harvard Rockefeller Center conference on equity and growth in Mexico, Mexico City November 27-28th, 2006.