Bolivia: Selected Issues

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BOLIVIA

Selected Issues

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I. PRECAUTIONARY RESERVES: AN APPLICATION TO BOLIVIA[1]

A. Introduction

1.   **Over the last few years, Bolivia accumulated unprecedented levels of foreign reserves resulting in a sharp improvement of its international investment position to become a net external creditor in 2008.** The main contributor to this development was the also record-high current account surplus that followed from high export prices over 2005–08.[2] As the cycle turns around and the significant current account surplus vanishes, obtaining estimates of an optimal level of reserves becomes highly relevant for economic policy design.

2.   **This paper derives estimates of optimal levels of reserves for Bolivia, focusing on current account shocks as the key balance of payments risk.** We choose this focus because Bolivia, being a commodity exporter with little reliance on foreign capital inflows, is more exposed to fluctuations in export revenues than to sudden interruptions of capital inflows. While not vulnerable to sudden stops, access to international capital markets may be limited; therefore, we impose borrowing constraints in our framework. The chosen framework is a standard precautionary savings model, with and without investment. In the latter case, consumers save not only for precautionary purposes, but also to finance the stock of capital.

3.   **Our model-based measures indicate that Bolivia's foreign reserves are adequate, with an optimal level between 29 to 37 percent of GDP.[3]** While these results could vary substantially depending on the chosen calibration, even under fairly conservative parameter values, Bolivia would be at worst at the optimal. While these calculations imply the existence of a sizable amount of excess reserves, it is worth noticing that there may be other roles reserves play that are not examined here, for instance, as a signaling device for private sector investors. Setting aside other potential reserve accumulation objectives, these results suggest that the recent surge in reserves in Bolivia is consistent with a precautionary motive aiming at shielding the economy from future shocks.

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[1] Prepared by Fabian Valencia; it summarizes a forthcoming working paper.

[2] Bolivia also benefited during this time from debt relief, which also contributed substantially to the improvement in the country's net foreign asset position.

[3] Technical details about the model can be found in the working paper version of this paper.

B. Bolivia: External Sector Developments

4.   **Over the last five years, a number of countries around the world experienced a sharp increase in the stock of foreign reserves held at central banks.** In Latin America, the rise was particularly accentuated for Bolivia, Brazil, and Peru (Figure 1).

5.   **In the case of Bolivia, the accumulation of foreign assets stemmed primarily from a persistent current account surplus, in the context of a crawling peg exchange rate regime.** Large current account surpluses followed from a major terms of trade improvement after the sharp increase in Bolivia's key export commodity prices during the period 2004–08, an important expansion in natural gas export volumes, and migrants remittances received—mainly from Spain, USA, and Argentina,—which increased fivefold between 2003 and 2008 to about 6 percent of GDP.
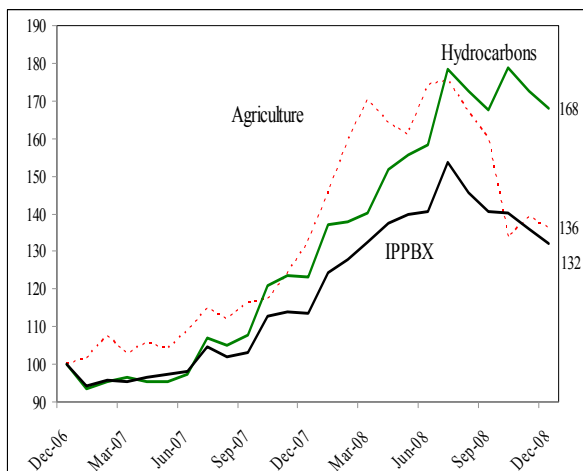
Figure 1. Selected External Sector Variables

Central Bank Foreign Reserves,
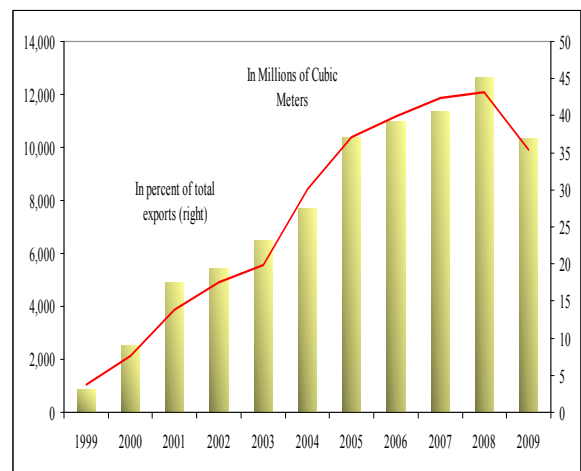December 2005=100
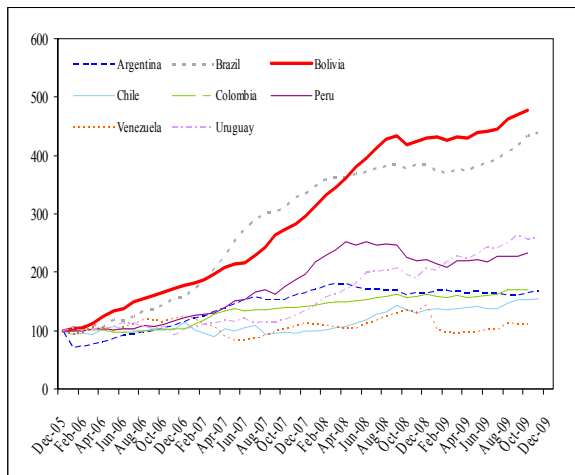
Bolivia's Net External Position, US$ billions
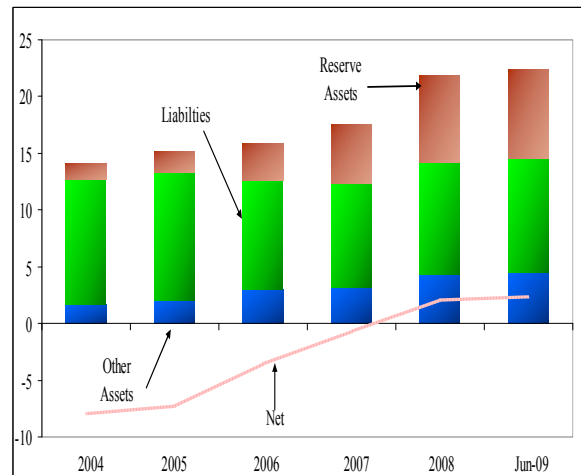
Export Prices
December 2006=100

Bolivian Natural Gas Exports

Sources: Central Banks of Bolivia, and Central Banks of respective countries.
Note: IPPBX = Commodities Price Index Export

C.   Rule of Thumb Measures of Reserve Adequacy

6.   **Two popular rules of thumb thresholds suggest that Bolivia has ample excess reserves.** The first one is the relation of official reserves to imports, usually expressed in months of imports, with a threshold of around three months. Figure 2 shows the observed level of reserves and the corresponding threshold. Another similarly popular measure is the denominated Guidotti-Greenspan rule, with a threshold for reserves equivalent to 100 percent of short-term foreign debt. Given the little integration of Bolivia with international capital markets, and the fact that most public debt is long-term, short-term foreign debt in Bolivia is very low, even on a remaining maturity basis as plotted in the graph.

Figure 2. Rule of Thumb Reserve Adequacy Indicators

Official Foreign Reserves, in Months of Imports

Official Foreign Reserves to Short-Term External Debt, Percent
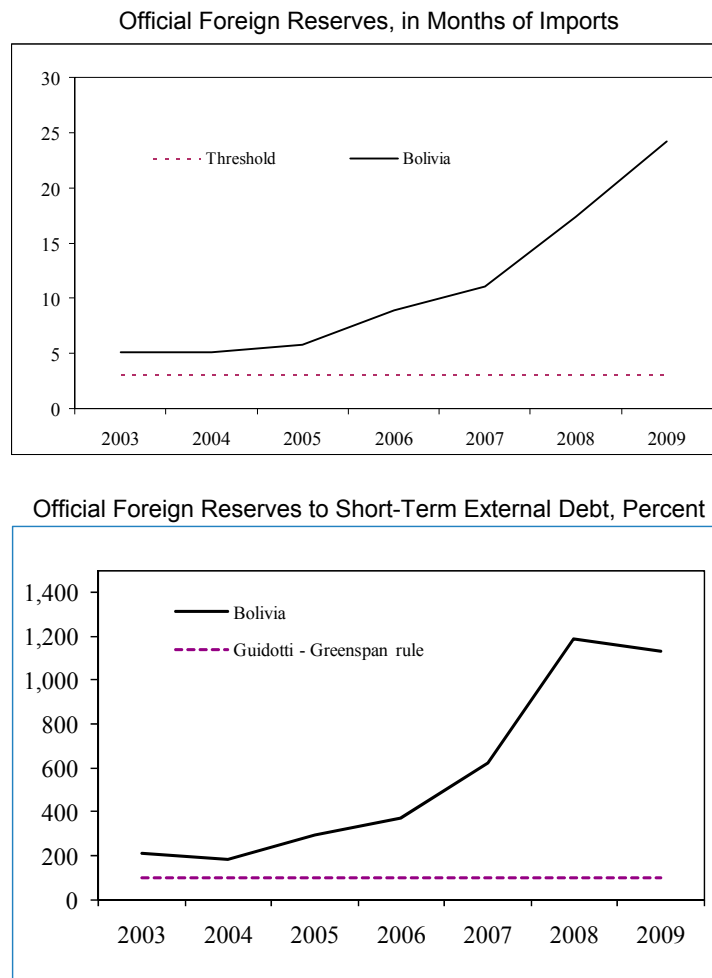
Source: Central Bank of Bolivia.

D.   Precautionary Savings Models

7.   **The baseline model is a standard precautionary savings model with liquidity constraints where reserves are used to shield consumption from unexpected transitory income shocks.** Households are assumed to consume only tradable goods and make consumption decisions as to maximize the expected present discounted value of the utility derived from consumption. Under this assumption, consumption can be understood as imports and income as exports. Consumers are assumed to be constrained from borrowing, therefore at most can afford an import bill equal to the current level of reserves. Future consumption is uncertain because it is affected by both, terms of trade shocks and export volume shocks. The model is solved with and without investment decisions.

8.   **The model without investment yields an optimal level of reserves of 29 percent of GDP.** We compare the model-based optimal reserves with the reported level of reserves by the consolidated financial system (central bank and financial institutions). We take this broad measure because the model provides an estimate of the optimal reserves at the economy level. Because one may argue that it is unlikely that foreign reserves would decline to zero and that with a dedicated arrangement to manage hydrocarbons wealth, reserves would be lower, we compare the results also with a more conservative definition of reserves. This alternative definition excludes gold holdings and dollar-deposits from the public sector in the central bank, assuming that under no circumstance the central bank would dispose of gold reserves.[4] The comparison yields that actual reserves exceed the suggested optimal levels— under the baseline calibration—by about 22 percentage points of GDP (or 12 percent under the alternative definition of reserves). In Figure 3, we also show the optimal level of reserves under an alternative calibration of terms of trade shocks, assuming lower volatility than in the baseline (in the baseline, the volatility of terms of trade shocks is set equal to that exhibited by energy exporting countries).

9.   **The version of the model with investment decisions yields an optimal level of reserves of 37 percent of GDP.** The corresponding optimal reserve levels are shown in Figure 4. For illustrative purposes, we also show the baseline optimal level derived in the version without investment (from now on we focus only on the baseline calibration of terms of trade shock). The analysis from both versions of the model yields an optimal level between 29 and 37 percent of GDP. Therefore, the larger the importance of entrepreneurs, the closer the optimal level would be to 37 percent.

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[4] We deduct only the dollar-denominated deposits because the local currency component is assumed to be destined to be used in non-tradable goods. Regarding the assumption of not using gold, during the severe crisis of 1982–85 the gold was not used.

Figure 3. Optimal and Actual Financial System Net Foreign Assets
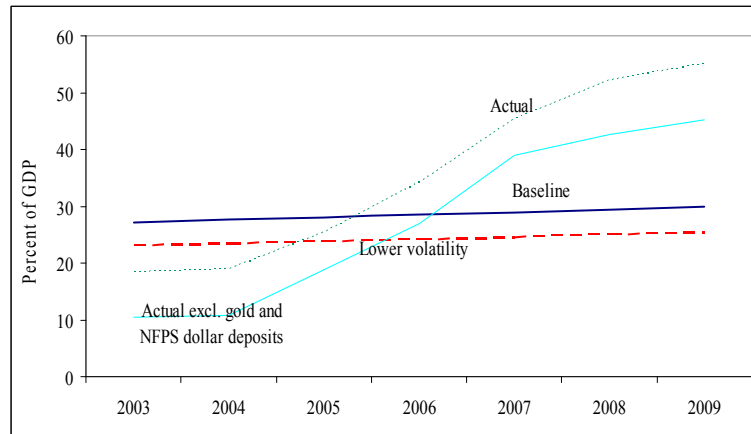
Source: Banco Central de Bolivia and author's calculations

Figure 4. Optimal and Actual NFA with and without Investment
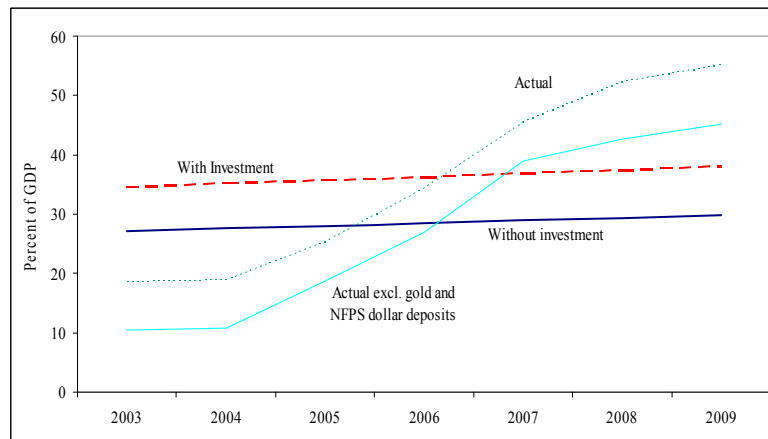
Source: Banco Central de Bolivia and author's calculations.

E. Sensitivity Analysis

10.   **The sensitivity analysis yields substantial variation in the level of optimal reserves as we change parameter values, however, even under very conservative calibrations Bolivia would be very close, but above the optimal level.** We perform sensitivity experiments to gauge how the optimal level of reserves changes when the opportunity cost and degree of risk aversion change, the two key parameters that determine the intensity of prudence and impatience. Table shows the resulting optimal level of reserves under different values of these two parameters for both versions of the model. Notice how as we intensify risk aversion and reduce impatience, the optimal level of reserves increases. In an extreme case of very low opportunity cost (β=96) and high risk aversion (ρ=3) Bolivia would still need to accumulate reserves. However, that would be an unrealistic opportunity cost, given the rates on existing foreign debt of Bolivia. Assuming that the baseline opportunity cost of holding reserves set at the baseline is reasonable, that is of about 6 percent (β=<0.94) even intensifying the degree of risk aversion to say ρ=3, Bolivia would be above the optimum.

Table 1. Sensitivity Analysis: Optimal Reserves, In percent of GDP

			β			
	Without Investment			With Investment		
	0.92	0.94 *	0.96	0.92	0.94 *	0.96
ρ						
1	25.4	26.6	32.2	25.7	28.4	35.7
2*	27.9	29.4	37.9	32.5	37.4	50.6
3	29.8	31.8	42.8	39.0	46.1	63.9

Denotes baseline calibrations.

F. Conclusions

11. **Following a surge in commodity prices and important increases in export volumes, Bolivia's net foreign asset position improved markedly to become a net external creditor in 2008.** Similar trends have been documented for other developing and emerging economies. A conventional wisdom to explain this increase in reserve asset holdings has been to appeal to precautionary savings theory. Under this view, reserve accumulation follows a precautionary motive to build buffers and shield domestic demand from balance of payments crises.

12. **We proceeded to calibrate standard precautionary savings models with borrowing constraints with data on Bolivia and obtained an optimal level of reserves between 29 and 37 percent of GDP.** The former corresponding to a version of the model without investment, and the latter when investment is included. Alternatively, we also contrasted these results with standard rule of thumb measures of reserve adequacy, which suggested a level of excess reserves substantially above what is suggested by our model-based calculations. These results suggest the need to properly account for country-specific balance of payment risks when deriving reserve adequacy indicators. While the results were shown to be sensitive to the calibration of parameters and to the definition of net foreign assets, even under conservative calibrations Bolivia would be at worst close, but above the optimum.

II. Hydrocarbon Revenue Sharing Arrangements[1]

A. Trends in Hydrocarbon Revenue and Dependence

1.   **Fiscal revenues from production and consumption of hydrocarbon products[2] comprise four types of revenues:** (i) revenue from hydrocarbon royalties, (ii) the special hydrocarbon tax (IDH), (iii) the excise tax on consumption of oil products (IEHD), and (iv) the (operating) surplus of the public oil and gas company, YPFB. Hydrocarbon related revenue that is specific to an oil and gas producing country can usefully be defined to comprise all the above except for the excise tax (iii). For the purposes of *intergovernmental fiscal transfers*, hydrocarbon revenue in Bolivia comprises all of the above except the surplus of YPFB (iv); the surplus of this firm is the only hydrocarbon revenue that is not subject to revenue sharing.

2.   **Hydrocarbon royalties and IDH are by far the most significant source of shared hydrocarbon revenue** (Table 1). Together, they represent around 80 percent of shared hydrocarbon tax revenue. Both are levied as a tax on the value of gas production, but they differ in the rate (IDH 32 percent, royalties 12 percent), collection, and the revenue sharing arrangements. The excise tax IEHD contributes the remaining 20 percent to shared hydrocarbon revenue.

Table 1. Hydrocarbon Revenues of the Non-financial Public Sector, 2005–09

	2005	2006	2007	2008	2009 (p)
	percent of GDP unless otherwise specified				
Total revenues and grants	30.9	34.3	34.4	38.9	32.5
of which IDH and hydrocarbon royalties	6.5	9.4	9.0	8.5	8.6
IDH	…	…	5.8	5.5	5.5
Hydrocarbon royalties	…	…	3.2	3.0	3.1
IEHD	2.4	2.2	2.3	2.1	1.9
YPFB (operating surplus)	0.1	0.7	0.3	4.3	0.8
Memo items:					
Hydrocarbon revenue (IDH, royalties, and IEHD)	9.0	11.6	11.3	10.6	10.5
in percent of total revenue	*29.0*	*33.8*	*32.9*	*27.2*	*32.3*
50 percent of gas and oil exports 1/	7.3	8.7	8.4	10.4	6.9

1/ IDH and royalties are equivalent to a 50 (32+18) percent tax on the value of total gas production. Until mid 2008 the export portion of IDH (around 85 percent of total gas production is exported) was paid to the Treasury by YPFB upon gas delivery at the border. Since mid 2008 export related IDH is paid to the Treasury by YPFB upon receipt of payments from Brazil and Argentina, usually within 90 days of delivery. This change has resulted in Treasury effectively receiving 9 months of IDH revenue in 2008.

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[1] Prepared by Fabian Bornhorst.

[2] This paper focuses on oil and gas related wealth but its considerations apply more generally to Bolivia's natural resource wealth. Mining royalties represent non-negligible source of revenue (0.5 percent of GDP), and may grow considerably if the mining potential is fully developed.

3.   **Hydrocarbon revenue has played a significant role in the fiscal consolidation that started in 2005.** Hydrocarbon revenue increased not only as a result of higher commodity prices and export volumes, but also due to changes in taxation and the organization of the industry. Specifically, the introduction of the IDH in 2005, and more recently the nationalization of the oil and gas industry—which is reflected in the record operating surplus of YPFB—have shifted the overall fiscal balance into surplus. The non-hydrocarbon balance, i.e. the overall balance net of hydrocarbon revenue and hydrocarbon investment, in turn, has weakened, and is projected to deteriorate from -6 percent of GDP in 2006 to -8 percent of GDP in 2009.

Hydrocarbon revenue and fiscal balances
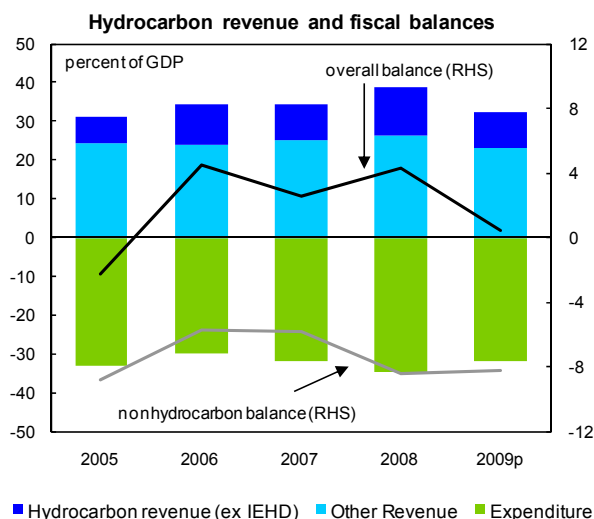
4.   **The improvement in the overall fiscal balance over the past years masks diverging trends between the central administration and the rest of the non-financial public sector.** The balance of the treasury has continuously deteriorated since 2006, while the overall balance of the rest of the public sector, in particular that of public enterprises has improved. Subnational governments have consistently recorded fiscal surpluses (Table 2).

Table 2: Composition of the Overall Fiscal Balance, 2006–09

		2006	2007	2008	2009 (p)
		percent of GDP			
Overall balance of the combined public sector		4.5	2.6	4.3	0.4
of which	Central administration	1.9	1.6	-0.3	-1.6
	Subnational governmnets	1.9	1.1	0.5	…
	Prefectures	0.8	0.6	0.2	…
	Municipalities	1.1	0.6	0.3	…
	Public enterprises	0.1	-0.5	3.3	0.2
	Operating balance of the central bank	0.7	1.3	1.2	0.1

Source: Memoria Fiscal 2008 and IMF staff estimates.

B. An Overview of Hydrocarbon Revenue Sharing Arrangements

5.   **Bolivia has a complex intergovernmental fiscal transfer system which is characterized by tax co-participation beyond hydrocarbon revenues.** Around 55 percent of hydrocarbon revenue and 20 percent of other tax revenue is transferred from the treasury to subnational governments and universities. The current system is the result of a unitary state on the one hand—where prefectures (departmental governments) have very limited revenue authority and the capacity of municipalities to raise revenue is small—and a strong commitment to decentralization and regional autonomy on the other hand. An additional

6.   factor that contributes to the complexity of the current system is the government's commitment to use hydrocarbon resources to address regional development disparities and to finance social programs, which has resulted in substantial earmarking of hydrocarbon revenue.

7.   **The revenue sharing arrangements have changed frequently in the past, and are set to change again to reflect changes emanating from the new constitution.** Since its introduction in 2005, the rules governing the sharing and use of the special hydrocarbon tax (IDH) revenue have changed five times. The new constitution, ratified in February 2009, calls for the establishment of four subnational levels of autonomies (departments, regions, municipalities, and indigenous autonomies) and specifies which competencies may or may not be exercised by each level of government. This includes tax authority and tax administration. The Law on Autonomies and related legislation—expected to be passed in 2010—will govern this process, and implementation is expected to begin in 2011. The re-organization of intergovernmental fiscal relations will be managed through a negotiation process known as the *Fiscal Pact*.

8.   **Subnational governments (prefectures and municipalities) and universities are dependent on sizeable transfers from the central government, in particular hydrocarbon revenue** (Table 3). The central government transfers around 30 percent of its revenue to prefectures and municipalities. Prefectures in particular are dependent on hydrocarbon revenue, with over 90 percent of their received transfers originating from hydrocarbon revenue sharing arrangements. Transfers to municipalities and universities depend to a lesser degree on hydrocarbon revenues (30 and 18 percent, respectively).[1]

9.   **Shared hydrocarbon revenue is distributed unevenly among departments**. While the revenue sharing arrangements cater for some redistribution through the Compensation Fund, the receipts per department remain largely a function of own hydrocarbon production. As a result, less populated but resource rich departments receive a higher share of hydrocarbon revenues in both absolute and relative terms than more populated regions (Figure 1).
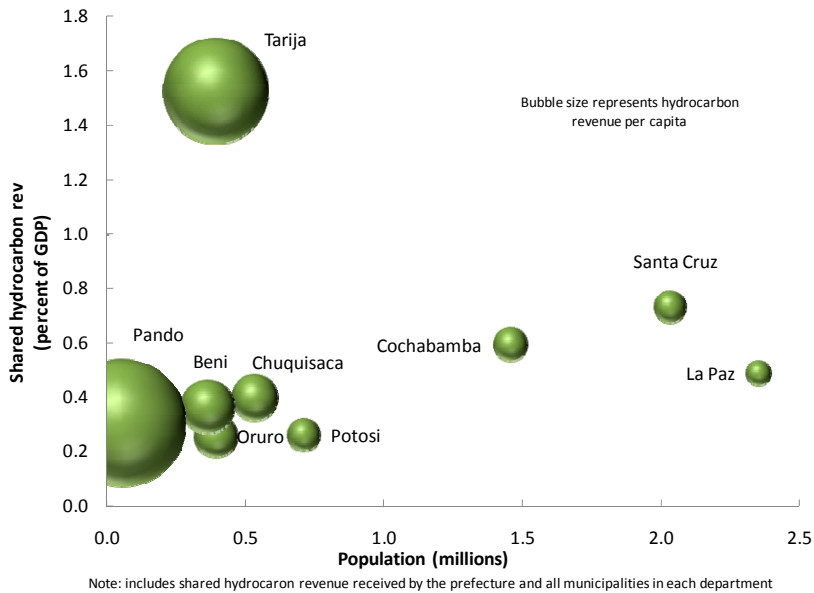
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[1] These numbers are a lower bound to hydrocarbon dependency of subnational governments because some hydrocarbon revenue, e.g. hydrocarbon royalties assigned to prefectures, is recorded as own revenue.

Table 3: Intergovernmental Fiscal Transfers and Hydrocarbon Revenue Sharing, 2005–08

	2005	2006	2007	2008	2005-08
	percent of GDP				
Total non-financial public sector revenue and grants	30.9	34.3	34.4	38.9	34.6
Hydrocarbon revenue (IDH, royalties, IEHD)	9.0	11.6	11.3	10.6	10.6
Total subnational transfers	8.7	11.3	11.4	10.5	10.5
of which hydrocarbon revenue transfers	4.3	6.6	6.6	5.5	5.7
Prefectures					
Total transfers received	4.0	5.2	5.2	3.7	4.5
hydrocarbon revenue	3.8	4.8	4.7	3.2	4.1
Municipalities					
Total transfers received	3.2	4.3	4.5	5.1	4.3
of which hydrocarbon revenue	0.3	1.5	1.5	1.9	1.3
Universities					
Total transfers received	1.5	1.7	1.7	1.7	1.6
of which hydrocarbon revenue	0.1	0.4	0.4	0.4	0.3

Source: MEF, Memoria Fiscal 2008, IMF Staff calculations.

Figure 1: Shared Hydrocarbon Revenue by Departments, 2008

Note: includes shared hydrocaron revenue received by the prefecture and all municipalities in each department
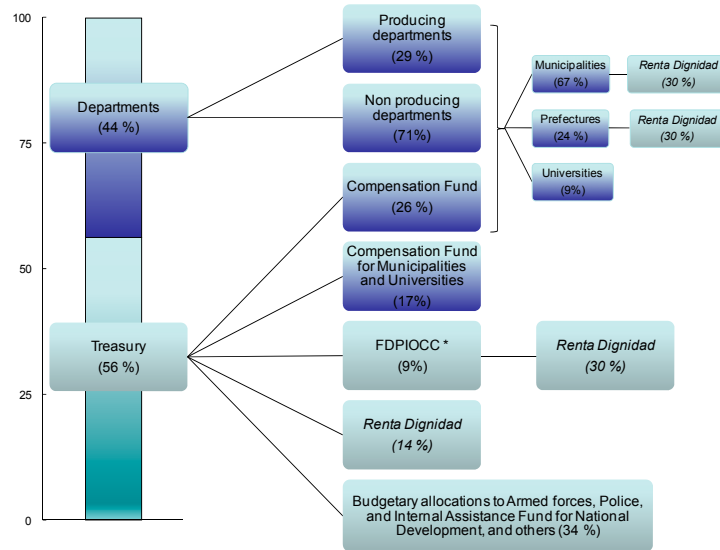
10.   **Hydrocarbon revenue sharing arrangements are complex** (Figures 2 and 3).

- IDH, the most significant hydrocarbon revenue, is shared among the central government, prefectures, municipalities, and universities. As a result, virtually all IDH revenue is either transferred to subnational governments, earmarked for development funds (*Fondo de desarrollo indígena y campesino*), social programs (*Renta dignidad*) or specific government functions. IDH is paid by YPFB and then transferred to the recipient entities of the public sector.

- Royalties are assigned primarily to the producing departments' prefectures (⅔). The remainder goes to the Treasury and is not earmarked. Unlike IDH, the fraction of royalties that is assigned to prefectures is recorded as own hydrocarbon revenue.

- The excise tax on fuel consumption is shared among the central government (65 percent), prefectures (30 percent) and universities (5 percent). While the central government receives the largest share of this consumption tax, it is important to note that the treasury also pays the direct subsidy on imported fuels. Over the last five years, the treasury's expenditure on direct fuel subsidies roughly equaled the amount it received from IEHD.

Figure 2: IDH: Current Revenue Sharing and Earmarking Arrangements

Notes: * FDPIOCC: *Fondo de Desarrollo para los Pueblos Indígenas, Originarios y Comunidades Campesinas.*
Based on CEDLA (2009)

Figure 3: IEHD and Hydrocarbon Royalties: Current Revenue Sharing Arrangements
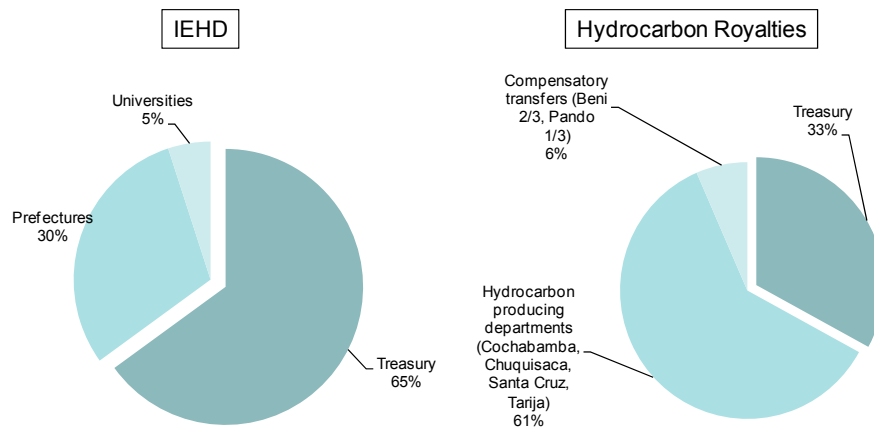
Based on CEDLA (2009).

C. Key Macro-critical Features of the Revenue Sharing Arrangements

11.   **The hydrocarbon revenue sharing arrangements are not accompanied by the devolution of spending responsibilities.** The transfer size depends on tax collections—hydrocarbon prices and volumes—and not on spending needs of subnational entities. Moreover, while the hydrocarbon revenue sharing regime has changed frequently, spending responsibilities of subnational government have remained largely unchanged. In key areas, expenditure responsibilities remain shared across government levels. In education, for example, responsibilities for building schools, hiring teachers and paying teachers rest at different government levels. To re-capture some of the resources transferred to subnational entities, the funding for the universal pension *Renta Dignidad* foresees mandatory contributions from shared hydrocarbon revenue by municipalities and prefectures.

12.   **Earmarking, capacity constraints, and tight treasury controls further limit the effective use of hydrocarbon resources at the subnational level**. Based on the principle that proceeds from natural resources ought to be invested to develop other assets, all revenue from IDH is earmarked for capital spending (human and physical), designated development funds, or specific social programs. As a result, at subnational levels resources may be employed inefficiently and current spending needs may not be adequately addressed. Budget execution and release of funds to subnational governments is at times complicated by disputes over adequate reporting between the treasury and subnational governments. In 2008, municipalities (prefectures) spent just 70 (49) percent of the available resources from IDH revenues.

13.   **While the transfer system is transparent, its predictability is low.** The revenue sharing agreements are well known and subject to public debate and analyses. The Ministry of the Economy and Public Finances publishes information on revenue sharing with individual prefectures and municipalities. The subnational budget allocations from revenue sharing arrangements are often underestimated and communicated late in the budget process, complicating the subnational budget process. This assessment was confirmed by the recent PEFA, which ranks the revenue scheme and the data reporting (at the level of the General Government) as high, but concludes that the provision of timely information to subnational governments about upcoming budgetary allocations could be improved significantly.

14.   **Public deposits at the central bank are scattered across subsectors, preventing an effective asset and liabilities management.** The increase in hydrocarbon related revenue, combined with changes in revenue sharing agreements and spending rigidities, has allowed subnational governments to accumulate sizeable deposits and improve their net position at the central bank (Table 4). Together with decentralized institutions and public enterprises, subnational governments account for over 85 percent of net public sector deposits with the central bank. The treasury, in contrast, has generally been in a net debtor position. This not only hinders effective asset management at the level of the general government, it may also lead to suboptimal debt management outcomes. For example, the central government may be

forced to issue debt to finance its operations, including making earmarked transfers to subnational governments, which will then rest as deposits the central bank.[1]

Table 4: Net Position of the Non-financial Public Sector with the Central Bank, 2005–08

	2005	2006	2007	2008
	Percent of GDP			
Total	-0.6	6.9	7.8	10.5
Central Administration	-6.9	-2.4	-1.1	-0.6
of which: Treasury	-8.3	-3.8	-2.5	-1.5
Decentralized institutions	1.7	2.2	2.0	2.2
Subnational governments	4.0	5.2	5.5	5.0
Prefectures	…	…	…	2.4
Municipalities	…	…	…	2.7
Social Security Institutes	0.4	0.5	0.7	0.9
Public Enterprises	0.1	1.4	0.6	3.0
of which: YPFB	0.0	1.3	0.2	2.8

Source: Central Bank of Bolivia.

15.   **The current revenue sharing system has pro-cyclical features and is not conducive to macroeconomic stabilization.** A sharp drop in hydrocarbon revenue could put pressure on the treasury's cash position. As it has no access to the deposits held by other subnational entities, it may be forced to reduce expenditure or issue additional debt. Subnational governments would also receive significantly less hydrocarbon transfers, and may not be able to utilize their deposits because of strict earmarking provisions. Thus, pro-cyclical features may be amplified at subnational level, and the general government's ability to design, implement and finance countercyclical policies may be constrained.
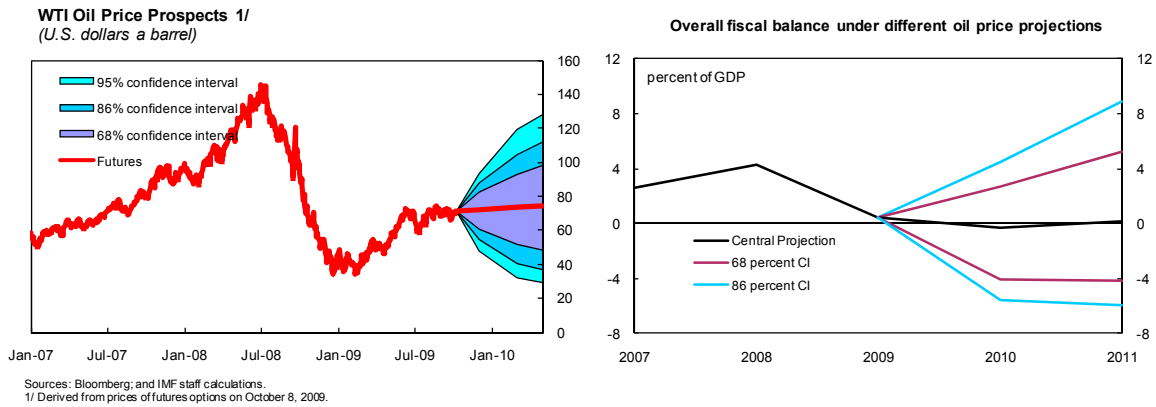
Fiscal aggregates and the economic cycle
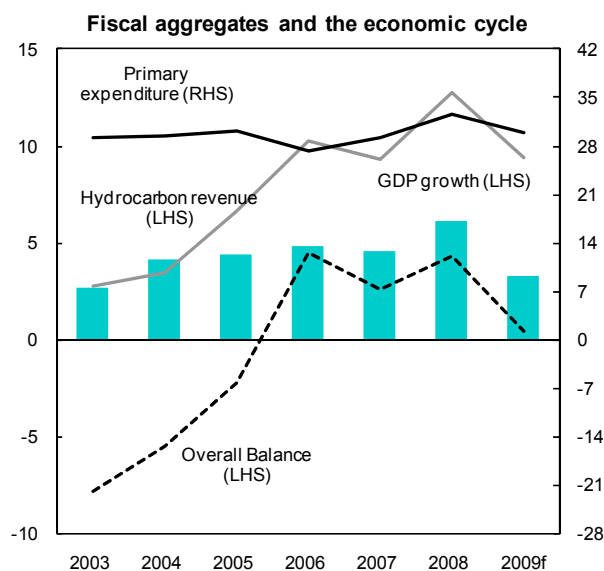
16.   **Hydrocarbon revenue is volatile and can have a significant impact on fiscal balances.** While Bolivia has enjoyed a number of years of stable hydrocarbon revenue, the financial crisis and its effects in the region are a timely reminder that hydrocarbon revenue is

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[1] Since public deposits do not pay interest, the central bank receives a sizeable implicit transfer. The operating balance of the central bank, which amounted to 1.2 percent of GDP in 2008, is transferred to the central administration.

a function of prices and export volume. As such, Bolivia remains vulnerable to demand for natural gas in neighboring Brazil and Argentina. According to future options (October 2009) oil prices will range between USD 49 and 98 per barrel at end 2011 with a 68 percent probability. Assuming a direct link between crude oil and natural gas prices, in a first approximation, this would translate into an overall fiscal balance of between -4.2 and 5.2 percent of GDP, respectively (Figure 4).[2]

Figure 4: Oil Prices and Impact on the Overall Fiscal Balance, 2010–11

WTI Oil Price Prospects 1/
(U.S. dollars a barrel)

95% confidence interval
86% confidence interval
68% confidence interval
Futures

Overall fiscal balance under different oil price projections

percent of GDP

Central Projection
68 percent CI
86 percent CI

Sources: Bloomberg; and IMF staff calculations.
1/ Derived from prices of futures options on October 8, 2009.

D. An Opportunity for Reform

17.   **Bolivia has yet to develop and formalize a long-term fiscal strategy for the management of natural resource wealth.** The re-nationalization of the oil and gas industry and high taxation of natural resources has enabled the government to generate sizeable rents that are transferred to sectors and regions with developmental needs. Universal social transfer schemes and conditional cash transfer schemes (e.g. *Renta Dignidad* and the *Bono Juancito Pinto)* are financed from hydrocarbon revenue. The earmarking provisions governing IDH revenue are based on the principle that the proceeds of hydrocarbon assets should be invested in the creation of new assets, both physical and human. While intergenerational equity considerations are not formalized, it is understood that current investment and social needs may argue for a frontloaded exploitation of resources.

18.   **The tax policy regime is important to secure future hydrocarbon revenue**. While proven reserves of natural gas indicate a low risk of depletion[3] in coming years, production constraints and external demand may be the limiting factor for expanding the pace of exploitation. In particular, ensuring adequate incentives for exploration and extraction activities and designing incentive compatible joint-venture operations will be key.

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[2] This approximation disregards second round effects (e.g. quantity adjustments) as well as economic developments that would accompany a large swing in oil prices.

[3] See IMF (2007) and *Ministerio de Hidrocarburos y Energía* (2008).

19.   **The implementation of the new constitution presents an opportunity to revisit the system of intergovernmental fiscal relations, the management of natural resources, and, more generally, the fiscal framework.** In particular it would be important to:

- **Review intergovernmental fiscal transfers**, with a view of (i) seeking a better balance between revenue and expenditure at different levels of government (ii) reducing the complexity of the current system (iii) making subnational transfers needs based and independent of hydrocarbon revenue levels. A better balance between overall revenue assignments and spending responsibilities would improve the efficiency of resource allocation. By revisiting the automatic link between hydrocarbon and subnational revenue, pro-cyclical features of subnational spending could be reduced and subnational budget predictability improved. At the same time, such balance would help achieve fiscal neutrality of the decentralization process and rebalance the financial position of the central administration. Earmarking provisions for the use of hydrocarbon revenues could be revisited to achieve an optimal mix of current and capital expenditure.

- **Enhance the ability of the government to implement macro-stabilization policies, by considering the creation of a savings fund.**[4] A national savings fund can provide for the stabilization of domestic demand through a saving/withdrawal rule that smoothes hydrocarbon revenue fluctuations. Whenever actual collections exceed (fall short of) a projected amount, the fund is credited (debited) accordingly. Such a fund could also be a tool for effective and transparent management of hydrocarbon resources, and may help introduce intergenerational considerations in the exploitation of nonrenewable natural resources. Any fund could uphold the current use of hydrocarbon resources, namely to finance capital expenditure and social transfers, and the subnational assignment.

- **Develop a medium-term fiscal framework.** A set of fiscal rules that is embedded in a fiscal responsibility law and flexible enough to allow for stabilization policies, would be an important anchor for fiscal policy. It should embrace national as well as subnational public finances, and consistent with a long term fiscal strategy for the use of natural resource wealth, the assessment of the fiscal position could be made on the basis of a non-natural-resource fiscal balance.

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[4] See Seoane and Evia Salas (2007), and Ossowski et al. (2008) for international best practices.

Box 1. Oil and Gas Stabilization Funds in Practice[1]

Key policy objectives of oil/gas funds include macroeconomic stabilization which comprises (i) smoothing of government expenditure in view of volatile and unpredictable hydrocarbon revenue (ii) intergenerational equity considerations, and (iii) transparency in the management of natural resources.

The operational objectives are typically formulated in terms of smoothing the net flow of oil revenue into the budget, depositing a share of revenue into the fund, and providing information about oil revenue inflows and changes in gross financial assets. Operational rules are designed to guide the accumulation and withdrawal of funds ex-ante. Specific principles are spelled out for the accumulation and withdrawal of resources, management of its assets, governance, transparency, and accountability.

Many stabilization funds have price contingent deposit and/or withdrawal rules (e.g., Algeria, Iran, Libya, Mexico, Russia, Trinidad and Tobago, and Venezuela). Other funds are revenue-share funds, where a predetermined share of oil and gas revenues is deposited in the fund (e.g., Equatorial Guinea, Gabon, and Kuwait). By contrast, only a few funds are financing funds, where the operations of the fund are linked directly to the budget's non-oil deficit (in Norway and Timor-Leste).

Rigid rules have proven not to be overly successful as they are often circumvented by policy makers. Experience also shows that successful management of stabilization funds can be enhanced by a full integration in the budget documentation, a clear and comprehensive investment strategy, and strong commitment to transparency and accountability.

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[1] Ossowski et al. (2007).

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