Republic of Azerbaijan: Selected Issues

The Selected Issues Paper on the Republic of Azerbaijan was prepared by a staff team of the International Monetary Fund as background documentation for the periodic consultation with the member country. It is based on the information available at the time it was completed on December 20, 2011. The views expressed in this document are those of the staff team and do not necessarily reflect the views of the government of the Republic of Azerbaijan or the Executive Board of the IMF.

INTERNATIONAL MONETARY FUND

REPUBLIC OF AZERBAIJAN

Selected Issues

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Approved by Middle East and Central Asia Department

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Contents   Page
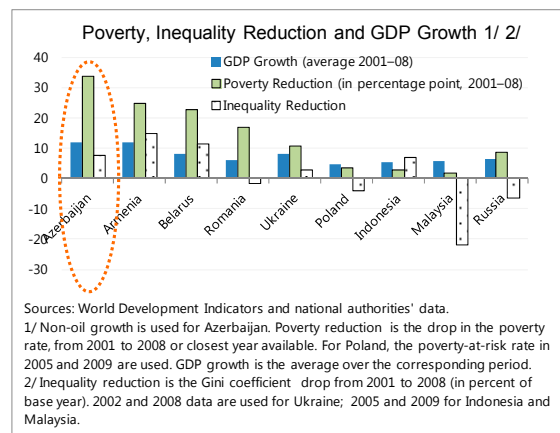
I. THE INCLUSIVENESS OF AZERBAIJAN'S GROWTH[1]

Rapid non-oil growth since the onset of the oil boom has contributed to substantial reduction in poverty and inequality. To keep growth inclusive, there is a need to accelerate economic diversification and make the non-hydrocarbon private sector a self–sustaining engine of growth. Policy priorities include strengthening governance and the business environment; improving human capital and productive infrastructure to enhance the productivity of private investment; and making access to finance more inclusive, particularly for small and medium–sized enterprises (SMEs). Expanding the relatively well–targeted social safety net will ensure coverage of the vulnerable groups.

A. Since the Onset of the Oil Boom, Growth has been Inclusive…

1. **There was a marked fall in poverty and inequality between 2001 and 2008:** [2]

- From 2001, poverty has fallen by more than 30 percentage points, to a rate[3] of 15 percent in 2008. This achievement is made more impressive by the fact that an estimated one in nine persons in Azerbaijan is internally displaced by the Nagorno–Karabakh conflict.[4] The poverty reduction record is also remarkable compared to other countries, including those in the region.

- Inequality also declined, with the Gini index falling by nearly 8 percent to 34 percent in 2008. In 2010, the mean income difference between cities and rural areas was relatively small with Gini indices of 33 and 27 percent, respectively, despite the fact that the poverty decline during the boom was more rapid in urban than in rural areas.

Poverty, Inequality Reduction and GDP Growth 1/ 2/

Sources: World Development Indicators and national authorities' data.
1/ Non-oil growth is used for Azerbaijan. Poverty reduction is the drop in the poverty rate, from 2001 to 2008 or closest year available. For Poland, the poverty-at-risk rate in 2005 and 2009 are used. GDP growth is the average over the corresponding period.
2/ Inequality reduction is the Gini coefficient drop from 2001 to 2008 (in percent of base year). 2002 and 2008 data are used for Ukraine; 2005 and 2009 for Indonesia and Malaysia.

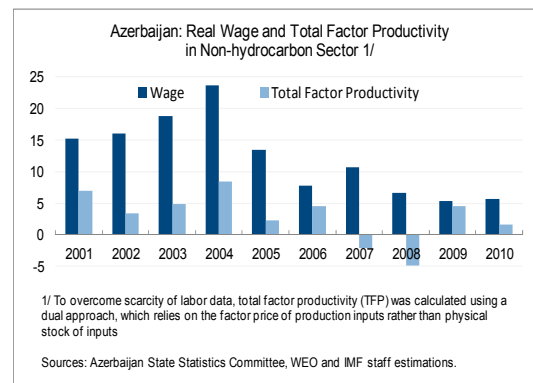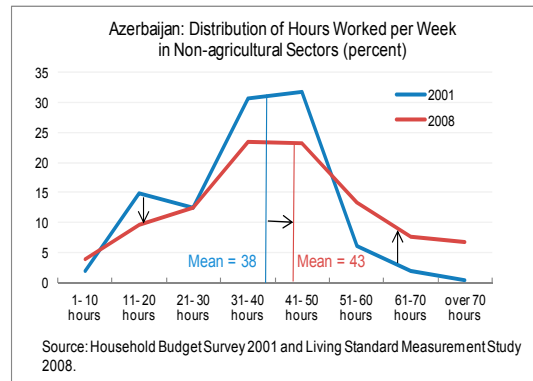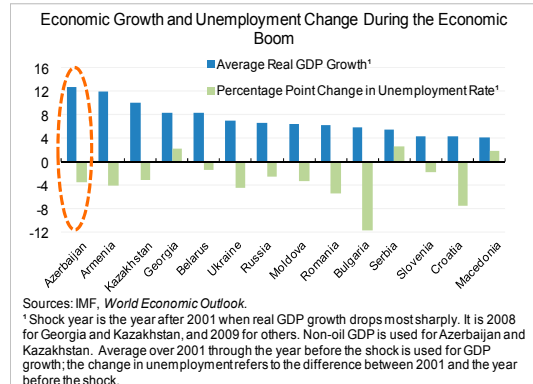[1] Prepared by M. Albino-War and A. Shahmoradi, with research assistance from C. Yang.

[2] The World Bank, *Azerbaijan Living Conditions Assessment Report,* No. 52801-AZ, 2010.

[3] The share of population below the poverty line.

[4] Although some of the internally displaced persons have integrated into mainstream Azerbaijani society, many still live in settlements and report government assistance as their main source of livelihood.

2.   **There were also signficant gains in wages and productivity, and a tightening of the labor market:**

- Official data do not indicate a significant fall in unemployment despite very high non-oil growth. The unemployment rate fell by less than 2 percentage points in spite of an average non-hydrocarbon growth rate of 10 percent. In contrast, many Eastern European countries were able to achieve similar or larger reduction in unemployment with lower growth. The lack of responsiveness of the offical unemployment rate in Azerbaijan to non-oil growth raises doubts about quality of such statistics and the defintion of unemployment.[5]

Economic Growth and Unemployment Change During the Economic Boom

- Average Real GDP Growth¹
- Percentage Point Change in Unemployment Rate¹

Sources: IMF, *World Economic Outlook.*
¹ Shock year is the year after 2001 when real GDP growth drops most sharply. It is 2008 for Georgia and Kazakhstan, and 2009 for others. Non-oil GDP is used for Azerbaijan and Kazakhstan. Average over 2001 through the year before the shock is used for GDP growth; the change in unemployment refers to the difference between 2001 and the year before the shock.

- The labor market appears to have tightened. Since the onset of the oil boom there has been a substantial increase in working hours and real wages. Household surveys indicate average weekly hours worked in non-agricultural jobs increased to 43 hours in 2008 from 38 hours in 2001. In addition, the share of people working less than a 40–hour week dropped from about 60 percent in 2001 to 50 percent in 2008.

Azerbaijan: Distribution of Hours Worked per Week in Non-agricultural Sectors (percent)

Mean = 38   Mean = 43

Source: Household Budget Survey 2001 and Living Standard Measurement Study 2008.

- There was also a substantial increase in real wages, and this was associated partly with gains in total factor productivity, particularly in the earlier phase of the oil boom.[6]
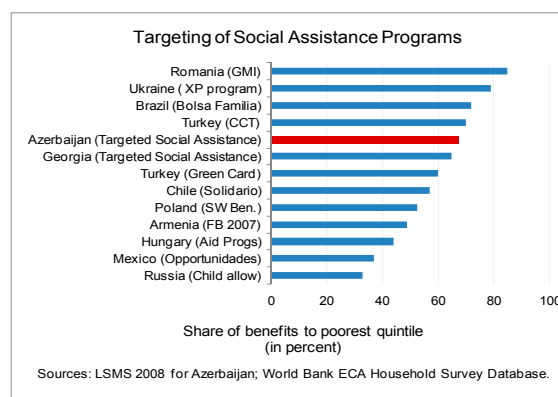
Azerbaijan: Real Wage and Total Factor Productivity in Non-hydrocarbon Sector 1/

- Wage
- Total Factor Productivity

1/ To overcome scarcity of labor data, total factor productivity (TFP) was calculated using a dual approach, which relies on the factor price of production inputs rather than physical stock of inputs

Sources: Azerbaijan State Statistics Committee, WEO and IMF staff estimations.

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[5] A person is defined as employed if they worked at least one hour in the week prior to the survey.

[6] To overcome scarcity of labor data, total factor productivity (TFP) was calculated using a dual approach, which relies on the factor prices rather than physical stock of inputs.

3.   **The social protection system also contributed to the reduction in poverty and inequality:**[7]

- Public spending on social protection amounted to 9 percent of non-oil GDP (in 2008) and the system of social transfers reached nearly two-thirds of the population, either directly or indirectly. Social transfers are either based on contributory social insurance (such as programs for the elderly and disable and unemployment assistance) or are non-contributory (such as programs for war veterans, people without social insurance, and allowances for families with children). Generalized subsidies on food and fuel are minimal. The main pro-poor social transfer programs are pensions and Targeted Social Assistance (TSA)—the latter is the only non-contributory, means-tested safety net program. Pension benefits account for about three-fourths of total spending on social transfers and cover about 46 percent of the population. The TSA channels about 10 percent of social transfer spending and reaches about 4 percent of the population.

- Notwithstanding its narrow coverage, the TSA is well targeted. According to the World Bank, about half the benefits flow to the bottom decile of the population, and less than one percent leaks to the top decile. Social assistance is key for the internally displaced population, with near three-fourths reporting social assistance as their main source of income.
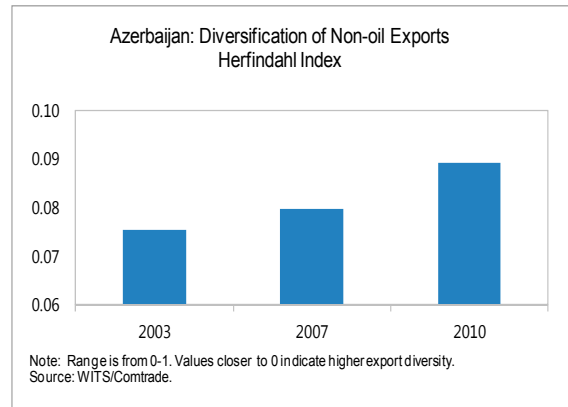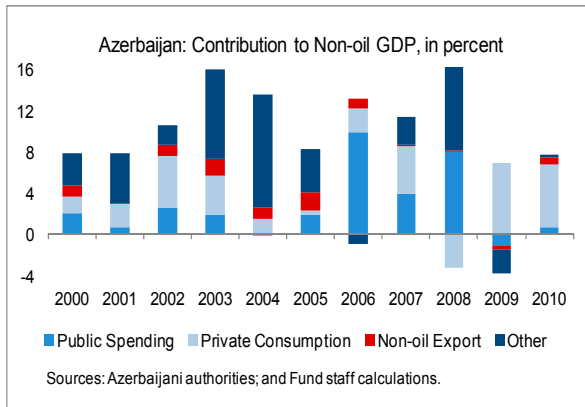

Targeting of Social Assistance Programs

Romania (GMI)
Ukraine (XP program)
Brazil (Bolsa Familia)
Turkey (CCT)
Azerbaijan (Targeted Social Assistance)
Georgia (Targeted Social Assistance)
Turkey (Green Card)
Chile (Solidario)
Poland (SW Ben.)
Armenia (FB 2007)
Hungary (Aid Progs)
Mexico (Opportunidades)
Russia (Child allow)

Share of benefits to poorest quintile (in percent)

Sources: LSMS 2008 for Azerbaijan; World Bank ECA Household Survey Database.

B.   …But Significant Challenges Remain in Keeping Growth Inclusive
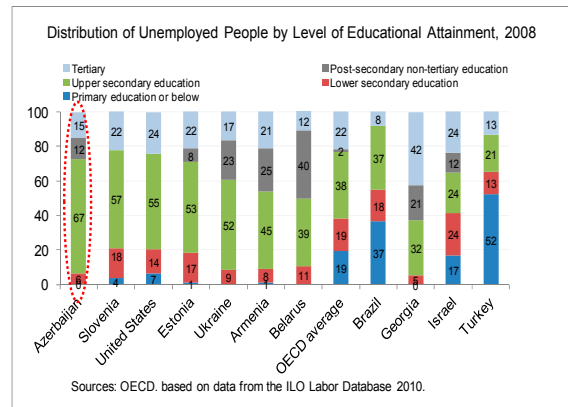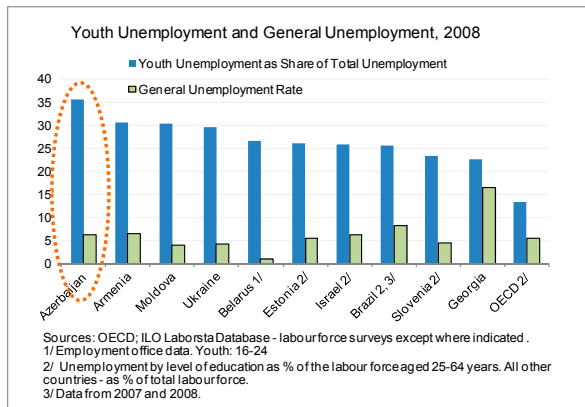
4.   **The dominant role of public spending in non-oil growth and the weak role of external trade are sources of concern**. Sustainable and inclusive growth requires a vibrant and diversified economy driven by the private sector. However, since the onset of the oil boom government contracts seem to be stimulating a large share of non-farm private activities, and external non-oil trade has not been a driver of non-oil growth. Non-oil exports have been making a diminishing contribution to non-oil GDP and have become less diversified over time (though the country has maintained, if not partially increased, its share in world non-oil exports). Indeed, about half of non-oil exports are concentrated on non-ferrous metals, vegetables, fruits and sugar with two-thirds channeled to immediate neighbors—Russia and Turkmenistan. The weak role of trade can be attributed to monopoly practices, administrative barriers and excessive bureaucracy. However, a new customs code,

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[7] The World Bank, *Azerbaijan Living Conditions Assessment Report,* No. 52801-AZ, 2010.

compliant with EU standards, is likely to be adopted next year and could help tackle some of these issues.

Azerbaijan: Contribution to Non-oil GDP, in percent

Public Spending   Private Consumption   Non-oil Export   Other

Sources: Azerbaijani authorities; and Fund staff calculations.

Azerbaijan: Diversification of Non-oil Exports
Herfindahl Index

Note: Range is from 0-1. Values closer to 0 indicate higher export diversity.
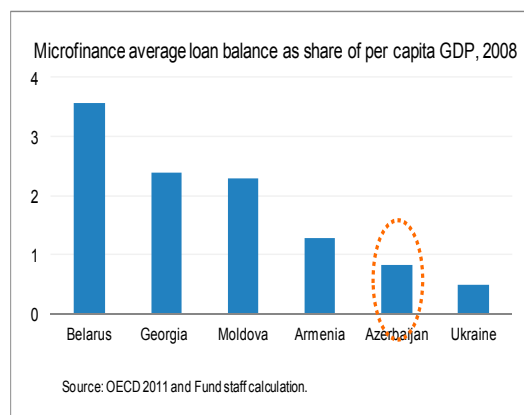Source: WITS/Comtrade.

5.   **Youth unemployment could become a critical issue.** Youth forms a large and increasing share of the population, including the unemployed. About a third of the unemployed belong to the 16–24 year old age group, and two-thirds of the unemployed hold upper secondary education degrees. A cross–country comparison suggests that youth are a disproportionate share of the unemployed population in Azerbaijan. The levels of inequality in the access to tertiary education and skill mismatches in the labor market are substantial, as indicated in recent World Bank and OECD assessments.

Youth Unemployment and General Unemployment, 2008

Youth Unemployment as Share of Total Unemployment
General Unemployment Rate

Sources: OECD; ILO Laborsta Database - labour force surveys except where indicated .
1/ Employment office data. Youth: 16-24
2/ Unemployment by level of education as % of the labour force aged 25-64 years. All other countries - as % of total labour force.
3/ Data from 2007 and 2008.

Distribution of Unemployed People by Level of Educational Attainment, 2008

Tertiary   Post-secondary non-tertiary education
Upper secondary education   Lower secondary education
Primary education or below

Sources: OECD. based on data from the ILO Labor Database 2010.

6. **Weaknesses in the business climate and governance, if not addressed, could continue to hinder the private sector, including SMEs:**

- The business climate has improved since the mid–2000s, and Azerbaijan ranks today above the CCA average on several rules and regulations associated with business climate. But there are serious constraints in some areas (also see Box 3 of the Staff Report). While some efforts are underway on controlling corruption and increasing budget transparency, the country ranks poorly on governance–related indicators (in the bottom third, globally). Key problems reported by firms on the ground include irregular competition, trade barriers, and corruption.[8]

- SMEs offer substantial potential for job creation, but are a much smaller contributor to growth in Azerbaijan than in comparator countries—their share in GDP has remained in single digits, well below the average of more than 50 percent in a sample of advanced economies and 30–40 percent in Asian countries. Such enterprises could account for as much as two-thirds of total employment in manufacturing, as reported in recent cross–country studies.[9] Recent studies (by the OECD and IFC) also find that SMEs in Azerbaijan continue to face high costs associated with entry and exit procedures, contract enforcement, government inspections, and property rights, despite the government's successful implementation of a one-stop-shop for registering a new business.[10]

7. **Insufficient access to finance has also impeded SME development.** More than half of SMEs in Azerbaijan face problems of access to finance, particularly at early stages of life cycle.[11] Financing vehicles tailored for SMEs, such as microfinance, are limited in Azerbaijan relative to other countries in the region. The lack of a credit bureau also encourages banks to lend to large companies rather than to SMEs.

Microfinance average loan balance as share of per capita GDP, 2008

Source: OECD 2011 and Fund staff calculation.

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[8] See World Bank, *Worldwide Governance Indicators* (Government effectiveness, Regulatory quality, Rule of law and control of corruption).
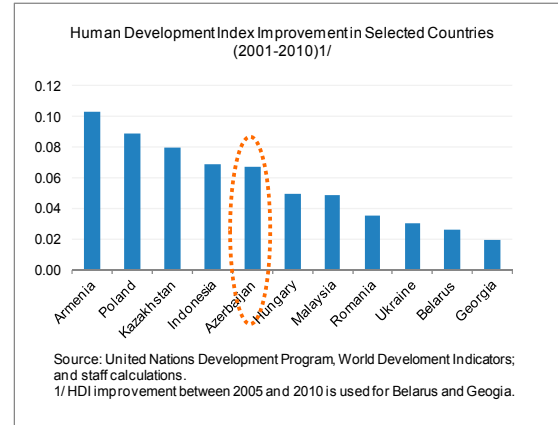
[9] Ayyagari, M., T. Beck, A.Demirguc-Kunt, "*Small and Medium Enterprises Access the Globe*", Small Business Economies, 2007.

[10] See OECD/WEF "*Competitiveness and Private Sector Development: Eastern Europe and South Caucasus 2011*", 2011; Hall Chris, *APEC and SME Policy: Suggestions for an action agenda*, University of Technology, Sydney, 2003; and Ayyagari et. al. (2007).

[11] WEF/OECD (2011), and IFC (2009).

8.   **Deficiencies in education and health are also a major constraint for the private sector**. There is strong cross–country evidence on the importance of human capital—particularly education—in fostering private investment and increasing labor productivity. Azerbaijan's rank in the Human Development Index (HDI)—comprising health, education and income—is below the comparator countries in Europe and Central Asia. The World Bank and OECD assessments point to inequities in access to education and health, and problems in the quality and relevance of skills in the workforce.

Human Development Index Improvement in Selected Countries (2001-2010)1/

Source: United Nations Development Program, World Develoment Indicators; and staff calculations.
1/ HDI improvement between 2005 and 2010 is used for Belarus and Geogia.

9.   **Going ahead, government policies for more socially inclusive growth could include:**
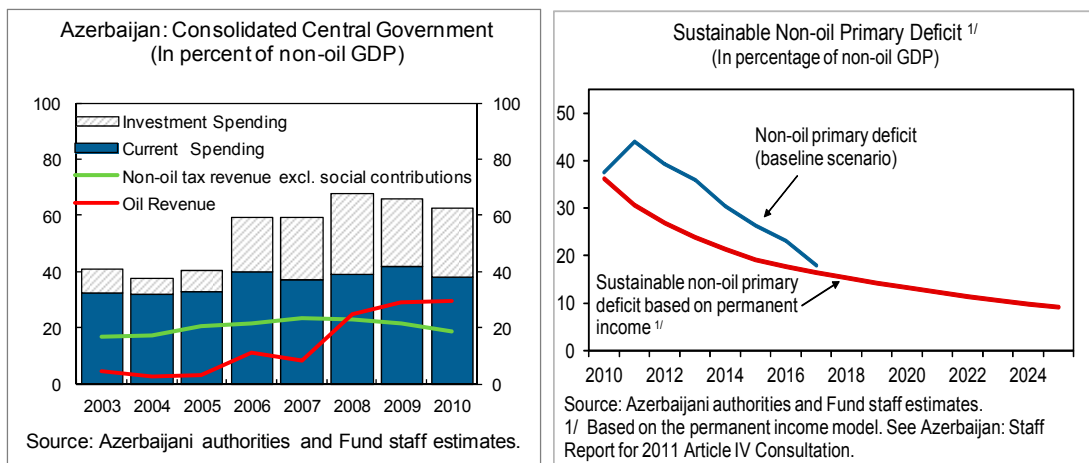
- advancing reforms in business climate and governance by promoting competition and tackling trade barriers, and corruption;

- promoting SME access to finance by establishing a credit bureau and developing specific and flexible devices to finance SMEs (e.g. microfinance facilities);

- improving employment prospects for the youth by bringing the current education curriculum in–line with market needs, and removing the existing bottlenecks in higher education;-and

- widening the social safety net by bringing other social benefits programs into the TSA program, and gradually increasing the resources allocated to it.

II. BOOSTING NON-OIL TAX REVENUE IN AZERBAIJAN[12]

Enhancing non-oil revenues is crucial to reducing Azerbaijan's dependence on hydrocarbons, including the heavy reliance of the state budget on such revenues and bringing the non-oil fiscal position to a sustainable level over the medium–term. A review of the performance and structure of non-oil tax revenue in Azerbaijan suggests there is room to advance a successful reform, while bringing the tax system closer to standards in other emerging market economies. Reforms should include broadening the tax base, reducing compliance costs, and enhancing tax system transparency.

A. The Importance of Non-oil Tax Revenue in Azerbaijan

10.   **Various factors point to the need to increase Azerbaijan's non-oil tax revenues.[13]** A larger role of non-oil taxes can help protect the macro economy from volatile oil prices, while reducing the need to tap oil savings. It would also help develop a long–term sustainable financing source for the government, given the limited horizon of oil resources and the rapid decline in oil production expected after 2018.
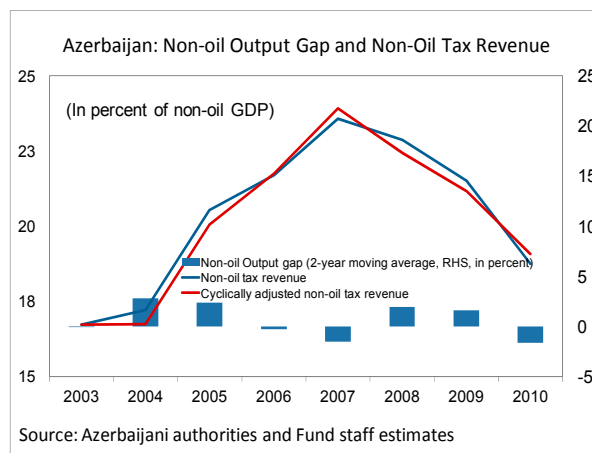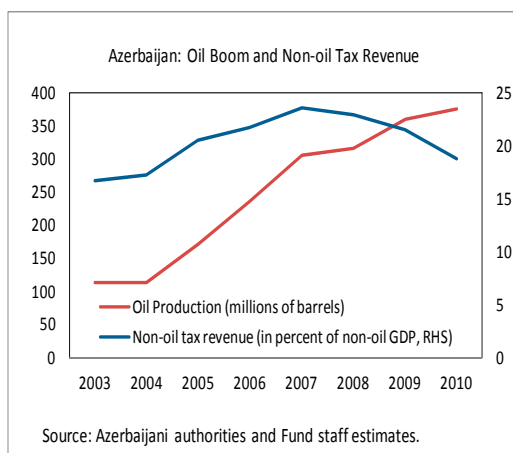

Azerbaijan: Consolidated Central Government (In percent of non-oil GDP)

Source: Azerbaijani authorities and Fund staff estimates.

Sustainable Non-oil Primary Deficit 1/ (In percentage of non-oil GDP)

Source: Azerbaijani authorities and Fund staff estimates.
1/ Based on the permanent income model. See Azerbaijan: Staff Report for 2011 Article IV Consultation.

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[12] Prepared by M. Albino-War, with research assistance from C. Yang and K. Krishna.

[13] Non-oil tax revenue is defined as tax revenue excluding profit tax from oil companies (AIOC and SOCAR), and SOCAR export tax. VAT and excise taxes on oil and gas are included.

B. Has the Oil Boom Affected the *Overall* Non-oil Tax Revenue Effort?

11.   **Performance of non-oil revenues was strong during the first four years of the oil boom (2004–07).**[14] Average non-oil tax collection increased by about four percentage points of non-oil GDP relative to 2003, even after adjusting for the economic cycle. Reforms of both tax policy and tax administration in the early 2000s laid the foundation of a modern tax system,[15] while a new tax code increased the importance of indirect taxes and allowed the alleviation of the corporate income tax burden. Tax administration was also modernized by creating a large tax payers unit, a state-of-the-art online system, and one-stop window for taxpayer registration.

Azerbaijan: Oil Boom and Non-oil Tax Revenue

Oil Production (millions of barrels)
Non-oil tax revenue (in percent of non-oil GDP, RHS)

Source: Azerbaijani authorities and Fund staff estimates.

Azerbaijan: Non-oil Output Gap and Non-Oil Tax Revenue

(In percent of non-oil GDP)

Non-oil Output gap (2-year moving average, RHS, in percent)
Non-oil tax revenue
Cyclically adjusted non-oil tax revenue

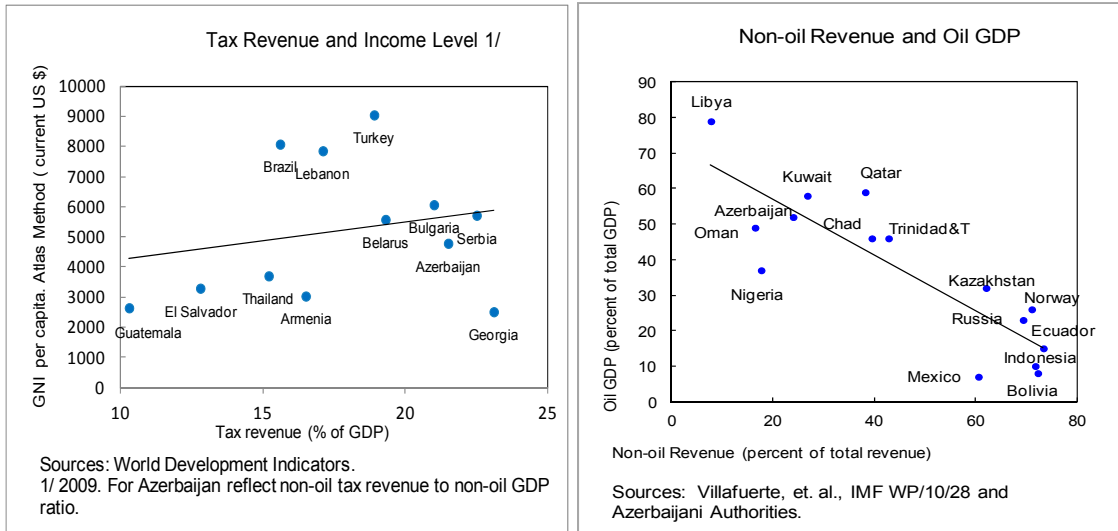Source: Azerbaijani authorities and Fund staff estimates

12.   **But in the following three years (2008–10), non-oil tax revenue declined considerably.** Performance weakened partly because of the adoption of revenue measures to mitigate the impact of the global crisis. In particular, the authorities reduced further the corporate and personal income tax rates, exempted banks and insurance companies from taxes on profits used for certain purposes, increased the VAT threshold, and adopted several VAT exemptions.[16] However, these "crisis" measures have been difficult to reverse once the economy recovered. The gap between non-oil tax revenue and current spending has risen to about 20 percentage points of non-oil GDP, after having fallen to 12 percent in 2005.

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[14] Tax revenue excludes social contributions in line with the IMF Government Financial Statistics Manual 2001.

[15] The estimated cyclically adjusted non-oil tax revenue follows methodology in Fedelino, A. et. al., 2009, "*Computing Adjusted Balances and Automatic Stabilizers*", IMF Technical Notes and Manuals- Fiscal Affairs Department, (Washington DC: IMF). Thus, the elasticity of the non-oil tax revenue to the non-oil output gap is assumed to be 1.

[16] Azerbaijan: IMF Staff Report on the 2010 Article IV Consultation, Country Report No. 10/113, as well as Sunley, E., Z. Kadar, and P. Medas, 2003, "*Azerbaijan: Selected Tax Policy Issues*," International Monetary Fund, Technical Assistance Report, unpublished.

13.   **Non-oil tax revenue in Azerbaijan today stands in the middle range in comparison with other countries.** A comparison with a group of middle and high income non-oil exporting countries suggests that the non-oil tax revenue to non-oil GDP ratio in Azerbaijan is broadly in line with its per capita level of income.[17] The share of the non-oil revenue in total fiscal revenue is also at about the average of a select group of oil producing countries (controlling for the share of oil in GDP).[18]

Sources: World Development Indicators.
1/ 2009. For Azerbaijan reflect non-oil tax revenue to non-oil GDP ratio.

Sources: Villafuerte, et. al., IMF WP/10/28 and Azerbaijani Authorities.

C.   Evolution of the *Structure* of Non-oil Tax Revenue

14.   **Azerbaijan's transition to an open market economy has been the major driving force in transforming its tax structure since independence.** The reforms of the early 2000s increased the reliance on indirect taxes, including on the broad-based consumption tax like the VAT. Since then, changes in the tax system have focused mainly on successive cuts in the CIT rate, to 20 percent in 2010. As a result, the share of indirect taxes—including VAT and excises—in total non-oil taxes increased from about one half in 2003–04 to almost two-thirds in 2009–10 (see Table 1).

15.   **The increasing reliance on indirect taxes is in line with international trends.**[19] In Azerbaijan—as in comparator countries—the share of indirect taxes (namely, VAT and excises) in tax revenue is larger than the share of direct taxes (comprising personal income and corporate profits taxes). Azerbaijan's performance on indirect taxes, however, lags that

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[17] Non-oil tax revenue in percent of non-oil GDP is used for comparison purposes with non-oil countries.

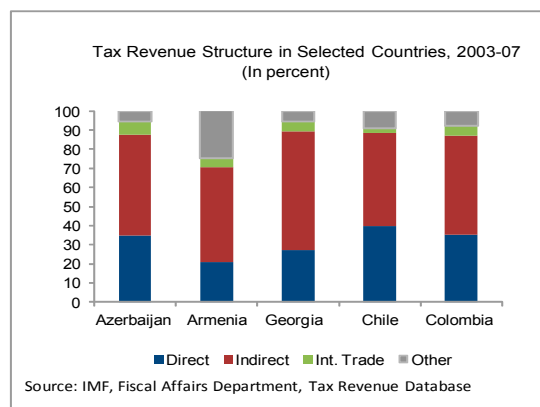[18] Non-oil revenue is used for comparison with other oil producing countries due to data availability.

[19] Keen, M., et. al., 2008, "*Revenue Mobilization in Sub-Saharan Africa: Key Challenges from Globalization*", unpublished, Fiscal Affairs Department, International Monetary Fund.

of regional peers with a lower income per capita. This point to weaknesses in the collection of indirect rather than direct taxes.
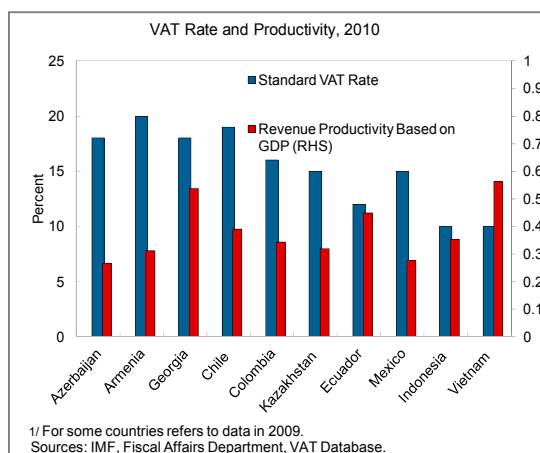
Table 1. Azerbaijan: Central Government Non-oil Tax Revenue

	2003	2004	2005	2006	2007	2008	2009	2010
	In percent of non-oil GDP							
Direct	4.8	6.0	7.5	8.3	8.6	6.7	6.1	4.9
Indirect	9.5	9.0	10.6	10.7	12.7	13.8	13.6	12.1
Trade	1.2	1.3	1.4	1.6	1.3	1.4	1.2	1.0
Other	1.2	1.0	1.0	1.1	1.0	1.0	0.6	0.8
Total	16.7	17.2	20.5	21.7	23.6	22.9	21.5	18.8
	Share in total non-oil tax revenue							
Direct	28.7	34.6	36.4	38.4	36.5	29.2	28.2	26.0
Indirect	57.0	52.0	51.5	49.3	53.9	60.1	63.4	64.4
Trade	7.0	7.6	7.0	7.4	5.5	6.3	5.5	5.5
Other	7.2	5.7	5.1	4.9	4.1	4.4	2.9	4.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Azerbaijani authorities and Fund staff estimates.

Tax Revenue Structure in Selected Countries, 2003-07 (In percent)

Source: IMF, Fiscal Affairs Department, Tax Revenue Database

16.   **There is room to improve the productivity of VAT. O**ther countries are able to generate more revenue than Azerbaijan, with comparable standard VAT rates (e.g. Georgia and Chile).[20] Comparison with other oil producing countries points to similar concerns. Notwithstanding a single, standard rate of 18 percent, the integrity of the VAT has been compromised by exemptions (including for firms participating in production sharing agreements (PSA) and joint ventures (JV) in the hydrocarbon sector) and by weaknesses in customs administration.[21]

VAT Rate and Productivity, 2010

1/ For some countries refers to data in 2009.
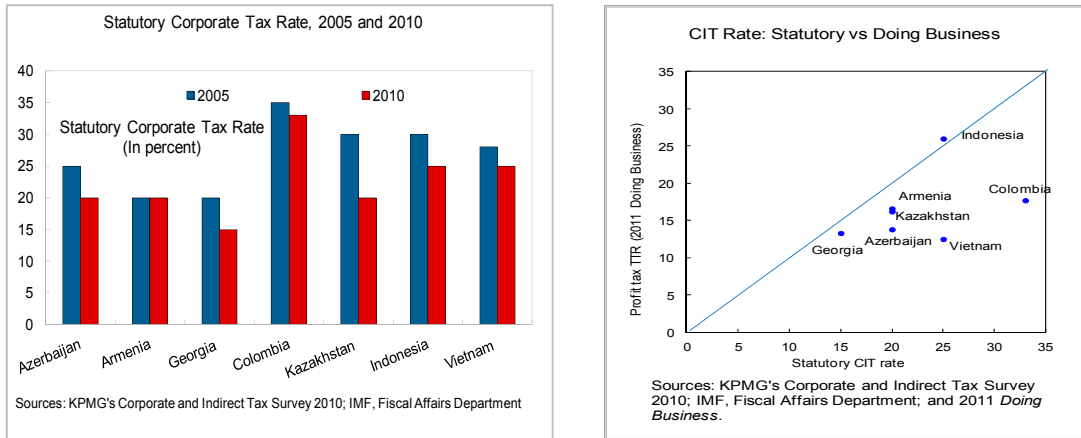Sources: IMF, Fiscal Affairs Department, VAT Database.

17.   **CIT revenue has also been underperforming.** Successive CIT rate cuts in recent years reflected the higher mobility of this base, the globalization process, and the tax competition pressures to attract investment. Still, Keen (2008) highlights that several countries have been able to increase CIT revenue by combining rate cuts with considerable expansion of the tax base. The loopholes in the CIT base are highlighted by a cross-country comparison of the standard CIT rate and the profit tax rate estimated in the *2011 Doing Business Report,* which shows a 6 percentage point deviation between these rates in

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[20] VAT productivity is measured by dividing the VAT revenue to GDP among the standard VAT rate.

[21] Zermeño, M., 2008, "*Current and Proposed Non-Oil Tax System in Azerbaijan,*" IMF Working Paper 08/225 (Washington DC: IMF).
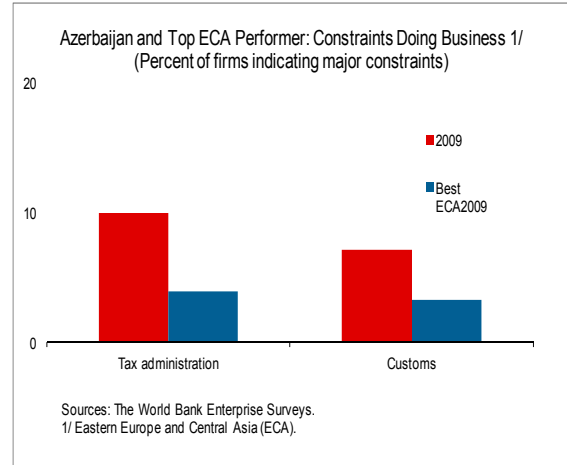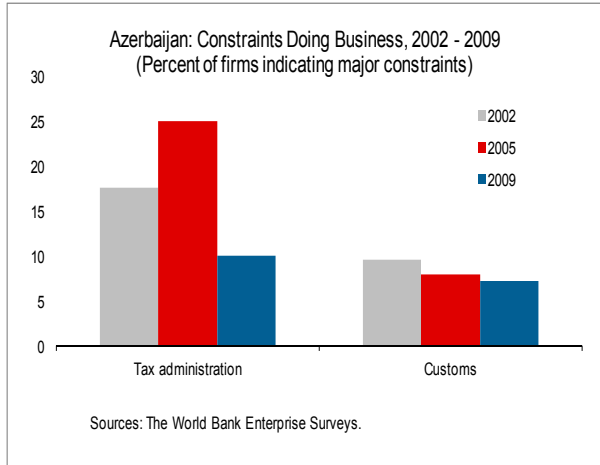
Azerbaijan.[22] More generally, the erosion of the CIT base in Azerbaijan could also be associated with the high share of the informal economy and the heavy use of cash for payments.

Statutory Corporate Tax Rate, 2005 and 2010

Sources: KPMG's Corporate and Indirect Tax Survey 2010; IMF, Fiscal Affairs Department

CIT Rate: Statutory vs Doing Business

Sources: KPMG's Corporate and Indirect Tax Survey 2010; IMF, Fiscal Affairs Department; and 2011 *Doing Business*.

18.   **The stability of the nonoil tax base has been compromised by discretionary actions.** In contrast to good practices where exemptions are approved by parliament and included in the tax code, administrative discretion of the cabinet of ministers is sometimes used in Azerbaijan. In addition to threatening the stability of the tax base, this weakens the transparency and accountability of tax policy decisions and undermines budget revenues.

19.   **Weaknesses in tax and customs revenue collection processes are also a concern.** Azerbaijan still ranks low (103 out of 181) in the 2011 *Ease of Paying Taxes* indicator of Doing Business. Further modernizing the tax administration and customs systems could enhance budget revenue, accelerate Azerbaijan's membership in the WTO and help combat corruption. Ongoing efforts in this direction focus on reinforcing the online IT systems for the registration and audit of taxpayers and on adopting a new customs code compliant with EU standards to strengthen customs offices, clarify methodologies for evaluating goods, and put in place a "single electronic window" for custom activities.

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[22] See World Bank Group and PwC, 2011, "*Paying Taxes 2011: The Global Picture*," Fifth Edition. In this report, the actual CIT is estimated from the implied CIT rate paid in profits for a standardized case company. The estimated CIT rate in Azerbaijan is close to 14 percent.

Azerbaijan: Constraints Doing Business, 2002 - 2009
(Percent of firms indicating major constraints)

Sources: The World Bank Enterprise Surveys.

Azerbaijan and Top ECA Performer: Constraints Doing Business 1/
(Percent of firms indicating major constraints)

Sources: The World Bank Enterprise Surveys.
1/ Eastern Europe and Central Asia (ECA).

D. Policy Implications

20. **The availability of ample hydrocarbon revenues today provides an opportunity to bring the structure and transparency of the tax system in line with good practices.** International experience suggests that tax reforms tend to be more successful when they are well planned and executed and not triggered by a severe short–term fiscal crisis.[23] Thus, the government—at a time when it enjoys a comfortable financial position—could revamp the tax system in line with earlier IMF advice by broadening the tax base, reducing compliance costs, and enhancing transparency. Previous Fund staff estimates suggest that the revenue impact of such reforms could be as high as 5–6 percent of non-oil GDP.[24]

21. **Broadening the tax base will require VAT and CIT measures.** Strong empirical evidence cautions against differential treatment for taxpayer groups or sectors, particularly in the CIT. Investor surveys suggest that macroeconomic and political stability, the quality of infrastructure and human capital, and the suitability of the legal and regulatory framework weigh more in attracting FDI than tax considerations.[25] Tax incentives could also have limited cost-effectiveness given the opportunities created for tax avoidance, profit shifting, rent-seeking, and corruption.[26] In line with previous advice from IMF staff, broadening the tax base would entail:

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[23] Strepanyan, V., 2003, "*Reforming Tax Systems: Experience of the Baltics, Russia, and Other Countries from the Former Soviet Union*," IMF Working Paper 03/173 (Washington DC: IMF).

[24] Zermeño, M., 2008, "*Current and Proposed Non-Oil Tax System in Azerbaijan*," IMF Working Paper 08/225 (Washington DC: IMF).

[25] Cubero, R., 2008, "*Globalization, Economic Integration, and Tax Structures in Central America*," International Monetary Fund, Regional Conference in Central America, unpublished.

[26] Keen, M., et. al., 2008, "*Revenue Mobilization in Sub-Saharan Africa: Key Challenges from Globalization*", unpublished, Fiscal Affairs Department, International Monetary Fund.

- Streamlining the special tax regime for PSAs and JVs;
- Aligning VAT exemptions on imports with those in the EU Sixth VAT Directive;
- Fully implementing the new one-stop facility and enhanced registration and filing of businesses to bring the informal economy into the tax net; and,
- Reversing CIT exemptions and preferential treatments granted during the global crisis, particularly with the recovery from the crisis on track. [27]

22. **Changes to the institutional framework for the approval of exemptions could enhance revenue by bringing greater transparency and accountability to tax policy and tax administration decisions.** In line with previous IMF advice, priorities are:

- Ensuring that exemptions are approved by parliament and included in the tax code. At a minimum, exemptions (both existing and new requests) should be presented to parliament with the annual budget, with a quantification of the fiscal costs and explaining the rationale for maintaining and/or approving them; and,
- Uniformly applying procedures across taxpayers.

23. **Tax and customs administration system modernization could be supplemented with appropriate self-assessment techniques and risk management systems.**[28] As demonstrated by the *2011 Paying Taxes Report,* electronic registration and filing of taxes are key measures to reduce compliance costs and improve enforcement, particularly when combined with:

- A self-assessment system based on simplified tax laws, forms and procedures to promote voluntary tax compliance without the intervention of a tax official;
- Modern risk management techniques for audits to provide more cost-effective outcomes by centering on risk identification and prioritizing key taxpayer segments; and,
- High quality security systems to help make the most of the automation process.

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[27] The recently announced expiry of some of the crisis related exemptions in early 2012 is a welcome step.

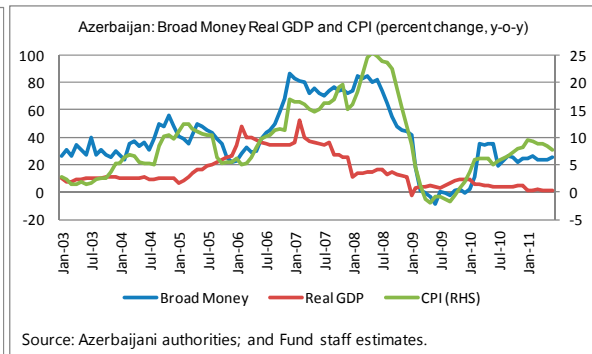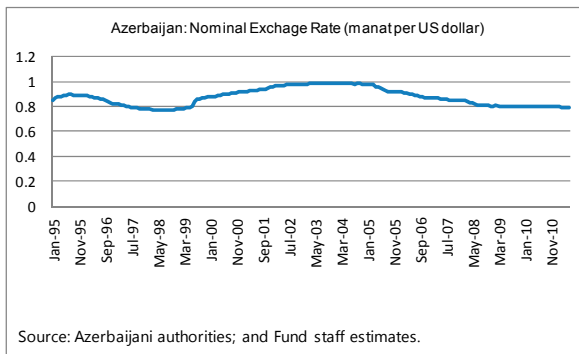[28] Harrison, G., D. Kloeden, and B. Russell, 2008, "*Azerbaijan: Tax Administration Reform Strategy For 2009-12,*" International Monetary Fund, Technical Assistance Report, unpublished.

III. EXCHANGE RATE POLICY AND MACROECONOMIC COSTS IN AZERBAIJAN: INSIGHTS FROM A DSGE MODEL[29]
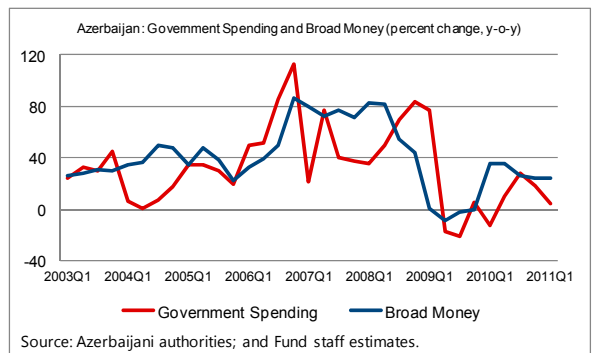
The inflation rate in Azerbaijan has been volatile during the past decade, reaching double-digit levels prior to the 2009 financial crisis. The de facto stabilized exchange rate regime in Azerbaijan has not been fully effective in controlling inflation and money supply in the face of various shocks. The results from a dynamic stochastic general equilibrium (DSGE) model confirm that greater exchange rate flexibility would be associated with lower inflation and output fluctuations in response to oil-price and government-spending shocks. Managed and fully floating exchange rate regimes confer similar macroeconomic stability benefits, and with underdeveloped capital markets and other supporting infrastructure lacking in Azerbaijan today, a move to a managed float may be more appropriate over the near term.

A. Background

24.   **The de facto stabilized exchange rate has not helped Azerbaijan with containing money supply or inflation.** The main objective of the Central Bank of Azerbaijan (CBA) is to provide price stability while limiting output fluctuations. However, with a limited range of sterilization instruments and an ineffective interest rate channel, CBA has struggled to keep monetary aggregates under control—broad money growth has been high and volatile, and not surprisingly, has translated into high and volatile inflation.

Azerbaijan: Nominal Exchange Rate (manat per US dollar)

Source: Azerbaijani authorities; and Fund staff estimates.

Azerbaijan: Broad Money Real GDP and CPI (percent change, y-o-y)

Source: Azerbaijani authorities; and Fund staff estimates.

25.   **Heavy government spending dominates monetary policy in Azerbaijan, and has been associated with inflation.** The budget has been heavily dependent on oil revenues, mainly to finance capital expenditures, which have

Azerbaijan: Government Spending and Broad Money (percent change, y-o-y)

Source: Azerbaijani authorities; and Fund staff estimates.

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[29] Prepared by A. Shahmoradi.

been high in recent years. In addition, positive surprises in global oil prices have recently triggered supplementary budgets. Under the current exchange rate regime, government spending necessitates the converting of foreign-currency-dominated oil revenue for local currency, and unsterilized conversions by CBA at the de facto stabilized exchange rate have contributed to significant monetary injection and inflation.

26.   **Not surprisingly, the real effective exchange rate has appreciated substantially.** With price dynamics in Azerbaijan tied to government spending and movements in oil prices, the de facto stabilized nominal exchange rate has essentially meant the transmission of these shocks to the economy, through an appreciation of the real effective exchange rate (REER).

Azerbaijan: Real Effective Exchange Rate

Source: Azerbaijani authorities; and Fund staff estimates.
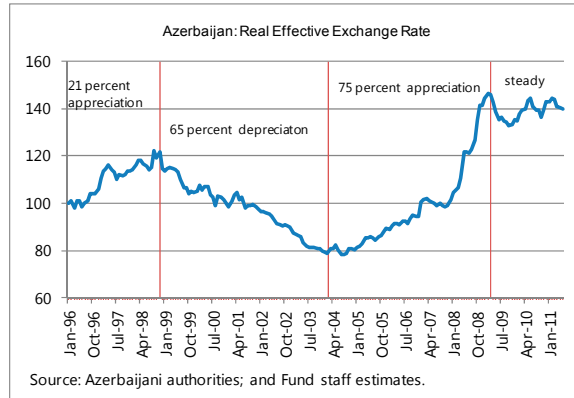
B.   Insights from the DSGE Model

27.   **The DSGE model serves as a useful device to investigate the impacts of oil price and government spending shocks on inflation and output under different exchange rate regimes.** The DSGE framework used herein is calibrated and tailored to a small hydrocarbon economy, such as Azerbaijan, with limited international capital market interaction, and fiscal dominance. It models the behavior of consumers, government, and the central bank (see Annex 1). We simulate two shocks—the impact of a 10 percent increase in the international oil price, and shock of similar magnitude to government spending. The impact of these shocks is assessed on key macroeconomic variables, particularly inflation and output, under three exchange rate regimes—fixed (or de facto stabilized), managed float and fully float.

28.   **Macroeconomic cost associated with an oil price shock is higher under a fixed exchange rate than under more flexible regimes.** Under a fixed exchange rate regime, the immediate impact of a transitory, 10 percent increase in the international oil price is a 16 percent increase in inflation and 8 percent rise in GDP growth from the long term trend. However, under a flexible exchange rate regime, a shock of the same magnitude would cause a less than 4 percent increase in inflation and 2 percent rise in GDP growth (though it would result in higher dollarization). Under flexible regimes, the price increase and GDP growth subside after two quarters and prices return to their long term trend in 3 quarters. The macroeconomic cost of exchange rate policies—measured through a simple quadratic loss function, comprising inflation and output fluctuations–is highest for a fixed exchange rate

regime, and substantially lower under managed or fully flexible regimes.[30] The intuition behind the results is that under a fixed exchange rate the central bank's purchases of foreign exchange, in response to the government's use of oil revenues (net of imports and household demand), increase the money supply and lead to inflation. But under a managed or fully floating regime, because the CBA is not committed to preventing an appreciation, the exchange rate appreciates, which, with higher imports, is accompanied by a lower intervention by the CBA. This in turn, results in a smaller increase in broad money and lower inflation pressures.

Impulse Response Functions: Macroeconomic Costs of an Oil Price Shock
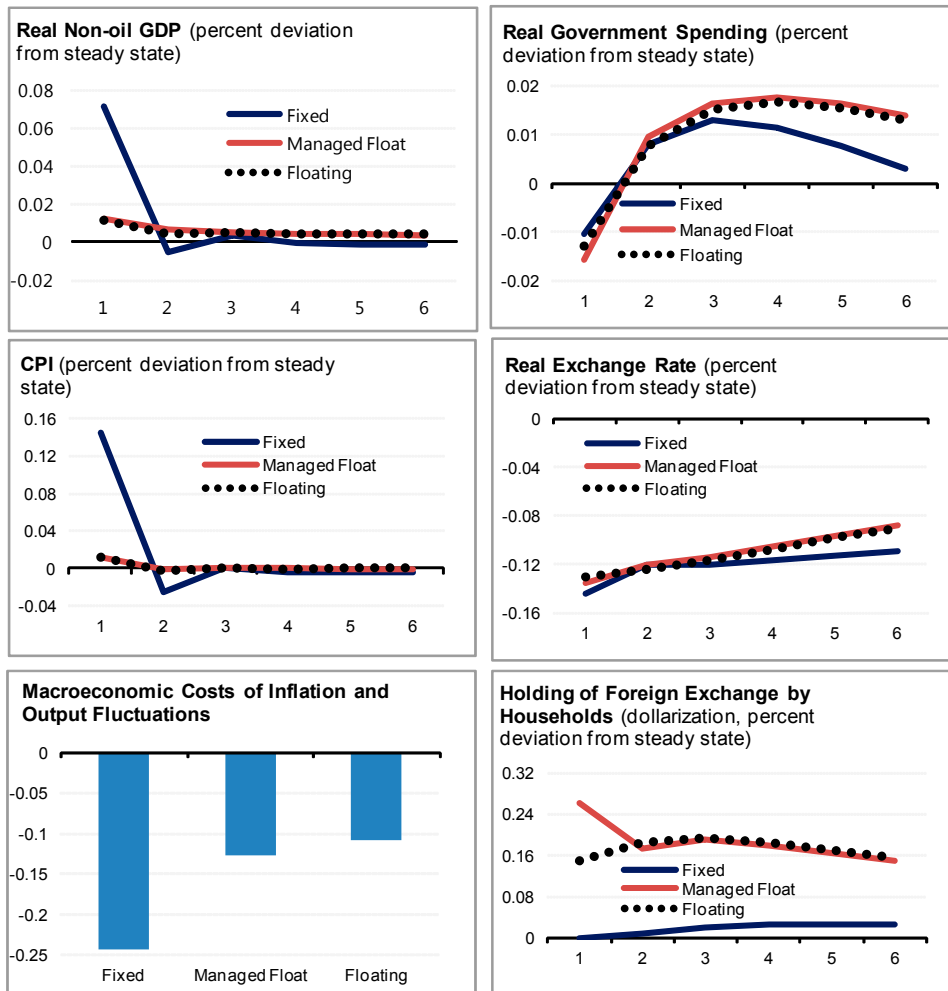
Sources: Model results; and Fund staff calculations.

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[30] Note that the model does not always suggest the fixed exchange rate as resulting in inferior macroeconomic outcomes. An exception could be when the labor market is inelastic to changes in wages in the short run, and the aggregate supply curve is close to vertical. Then, a fixed exchange rate would be associated with the lowest macroeconomic costs in the face of shocks discussed above.

29.   **A shock to government spending yields similar results.** The mechanism through which an unexpected and transitory increase in government expenditure by 10 percent affects the macro economy is not very different from that of an oil price shock. The simulation under the three exchange rate regimes mentioned above, suggest that by following a more flexible exchange rate, the central bank can mitigate better the negative impacts of such a shock compared to a fixed exchange rate. These results hold despite the presence of fiscal dominance.

Impulse Response Functions : Macroeconomic Costs of a Government Spending Shock
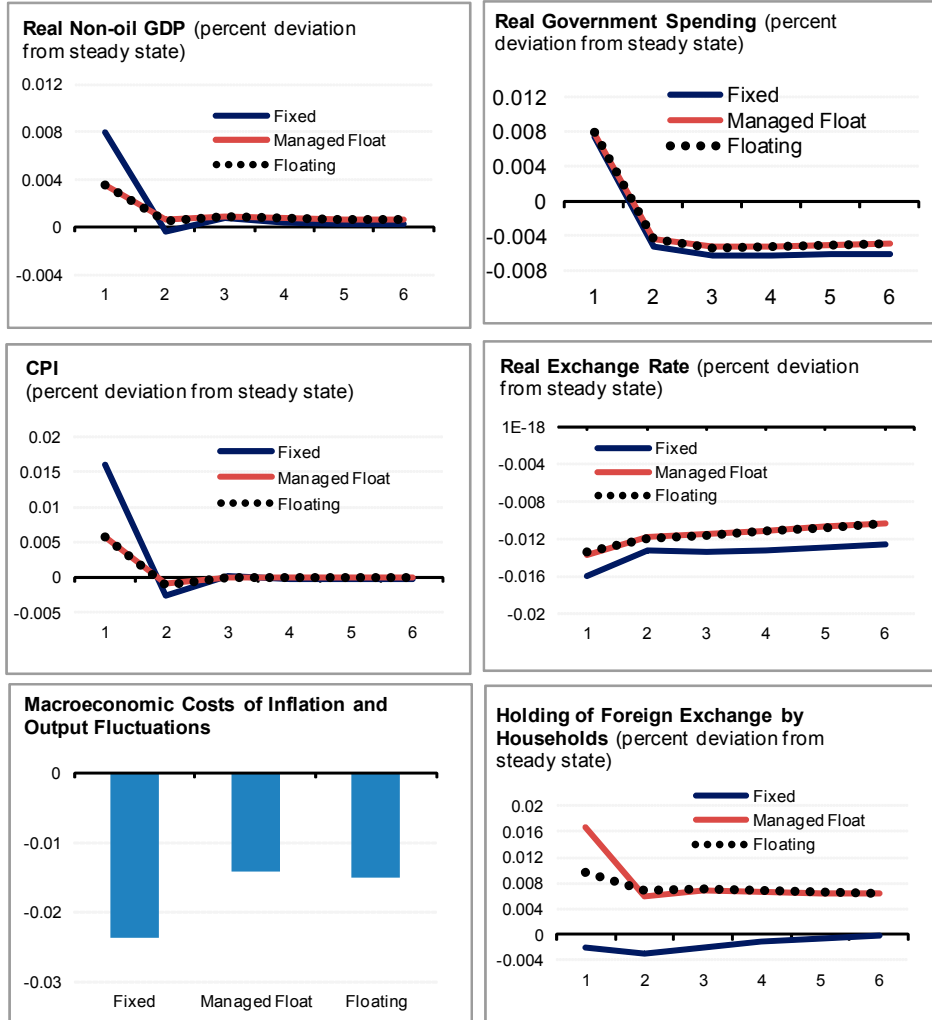
Sources: Model results; and Fund staff calculations.

30.   **A move to fuller exchange rate flexibility would require appropriate supporting infrastructure as a prerequisite.** While greater exchange rate flexibility could help maintain inflation in the near term, a move to full exchange rate flexibility would require a host of actions and should be seen as a medium term goal. These include increasing CBA's independence, developing a credible nominal monetary anchor, developing securities market; introducing currency risk mitigation instruments; deepening the interbank credit market; reducing distortions in interest rates and pricing of government securities; and improving the coordination between monetary and fiscal policies[31].

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[31] For more details, see "*Staff Report for the 2010 Article IV Consultation*", IMF Country Report 2010, No. 10/113.

Annex I: The Azerbaijan DSGE Model: Basic Assumptions

The structure of the model, which follows, among others, standard DSGE models in Ireland (2004)[32] and Gali and Monacelli (2005),[33] has been tailored to the case of the Azerbaijani economy—an open economy with a dominant oil export sector, limited interaction with international capital market, fiscal dominance of monetary policy and the distinct feature of the declining oil production (as in Azerbaijan today)[34]. It models the behavior of consumers, producers, the central bank, and the fiscal authorities.

The model is linearized and solved using the Blanchard–Kahn method. The main equations of the model are given below[35].

The representative household holds manat and foreign currencies, consumes domestic and imported goods and services, and provides capital and labor to production, pays taxes, holds government bonds, and receives dividends on investment. It maximizes its expected lifetime utility function, subject to budget constraint.

Utility function

$$U = E \sum_{t=0}^{\infty} \beta^t \left[\frac{c_t^{1-\sigma}}{1-\sigma} + \frac{\gamma_m}{1-\kappa_m} \left(\frac{M_t}{p_t} \right)^{1-\kappa_m} + \frac{\gamma_x}{1-\kappa_x} \left(\frac{e_t FX_t}{p_t} \right)^{1-\kappa_x} - \psi \left(\frac{L_t}{1+\tau} \right)^{1+\tau} \right]$$

The consumer budget constraint is given by:

$$c_t + i_t + \frac{M_t}{p_t} + \frac{e_t FX_t}{p_t} + \frac{B_t}{p_t} = r_t k_t + w_t L_t + \frac{M_{t-1} + D_t + T_t}{p_t} + \frac{e_t FX_{t-1}}{p_t} + \frac{R_{t-1} B_{t-1}}{p_t}$$

And consumption and investment consist of domestically produced and imported goods as

$$c_t = \left[(1-\gamma_c)^{1/\mu_c} c_H^{1-\mu_c} + \gamma_c^{1/\mu_h} c_F^{1-\mu_c} \right]^{1/1-\mu_c}$$

$$i_t = \left[(1-\gamma_i)^{1/\mu_i} i_H^{1-\mu_i} + \gamma_i^{1/\mu_i} i_F^{1-\mu_i} \right]^{1/1-\mu_i}$$

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[32] See Ireland, P. 2004, "*Money's Role in the Monetary Business Cycle*", Journal of Money, Credit, and Banking.

33 Galí, J., and Tommaso Monacelli, 2005. "*Optimal Monetary and Fiscal Policy in a Currency Union*," Economics Working Papers 909, Department of Economics and Business, Universitat Pompeu Fabra.

[34] In the current version, the model does not include a complex financial sector, which is in line with the status of Azerbaijani economy today.

[35] Capital letters indicate nominal terms, while small case letters represent real values. Letters with "hat" signify deviations from steady state values.

where

$$p_t c_t = p_H c_H + e_t p_f c_F$$

The economy produces oil and non-oil goods and services. Non-oil sector production consists of final and intermediate goods producers. The latter employs domestic labor, rents capital, and sells output in monopolistic competitive markets, which introduces sticky prices and makes room for implementing monetary policy. Final good producers use intermediate products and assemble final goods and services to sell in competitive markets.

Finished goods producers' behavior is given by:

$$y_t^n = \left[\int_0^1 y_j^{\theta-1/\theta} dj \right]^{\theta/\theta-1}$$

And that of intermediate goods producers by:

$$y_{j,t}^n = A_t k_{j,t}^\alpha L_{j,t}^{1-\alpha}$$
$$A_t = \rho_a A_{t-1} + (1-\rho_a)\overline{A} + \varepsilon_{A,t}$$

The adjustment cost function is:

$$AC_t = \frac{\varphi}{2}\left[\frac{p_{j,t}}{p_{j,t-1}} - 1 \right]^2 y_t^n$$

The intermediate goods producers' problem is:

$$MaxE\sum \beta^t \lambda_t \frac{D_j}{p_t}$$

where the dividend, D, is

$$D_{j,t} = p_j y_{j,t}^n - p_t r_t k_{j,t} - p_t w_t L_{j,t} - p_t \frac{\varphi}{2}\left[\frac{p_{j,t}}{p_{j,t-1}} - 1 \right]^2 y_t^n$$

Capital accumulation is:

$$k_t = (1-\delta)k_{t-1} + i_t$$

The fiscal authorities finance government spending by issuing bonds, transferring oil money from the sovereign oil fund, and levying taxes on output. The government sector is characterized by:

$$G_t = \tau_g OR + T_t + B_t - R_{t-1} B_{t-1}$$

$$T_t = \tau_{tax} Y_t + \varepsilon_{g,t}$$

$$B_t = \tau_{bond} G_t$$

$$OR = e_t y_t^o p_t^o$$
$$y_t^o = \rho_{dec} y_{t-1}^o + (1 - \rho_{dec}) \bar{y}^o + \varepsilon_{op,t}$$
$$p_t^o = \rho_o p_{t-1}^o + (1 - \rho_o) \bar{p}^o + \varepsilon_{o,t}$$
$$\varepsilon_{o,t} \sim N(0, \sigma^2)$$

We define the objective of the central bank as one to stabilize prices and mitigate output fluctuations. It does so by managing the growth of money supply in the economy. In the absence of interest rate as an efficient instrument to implement monetary policy, the central bank uses other monetary tools, to manage the growth rate of the broad money. We assume that the supply of foreign currency mainly emanates from the oil fund, and the central bank only intervenes in the foreign exchange market to conduct monetary policy.

Central bank's monetary policy is characterized by:

$$M_t = \mu_t M_{t-1} + INT_t$$
$$INT_t = \tau_g OR_t - IM_t - e_t FX_t$$
$$IM_t = e_t p_f (c_F + i_F)$$
$$\mu_t = \rho_\mu \mu_{t-1} + \eta_y (y_t - \bar{y}) + \eta_\pi (\pi_t - \bar{\pi}) + (1 - \rho_\mu) \bar{\mu} + \varepsilon_{\mu,t}$$

And exchange rate policy by:

$$\hat{e}_t = \rho_e \hat{e}_{t-1} + (1 - \rho_e) \hat{\pi}_t + \varepsilon_{e,t}$$

The market clearing condition is given by:

$$Y_t = Y^n_t + Y_t^o$$
$$Y_t = C_t + I_t + G_t + (EX_t - IM_t)$$

We assume three scenarios for the exchange rate in Azerbaijan. Under the first scenario, the exchange rate is de facto stabilized (or, in economic terms, fixed) and the central bank intervenes in the foreign exchange market to prevent significant movement in the exchange rate. Under this scenario, the nominal exchange rate does not change with changes in domestic or foreign prices. The second and third scenarios assume a more flexible exchange rate, a managed float and floating regime, respectively.

Given the structure of the oil sector, oil price shocks are exogenous to the economy and follow an autoregressive process. Unanticipated changes in government fiscal policy and CBA's monetary and exchange rate policies are among domestic policy shocks incorporated in the model.