

Oil Revenue Volatility, Sanctions and Mismanagement: Lessons from Iran

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The Iranian Economy has a lot of Potential!

- ▶ The second largest economy in the Middle East and North Africa (MENA) region with the second largest (highly **educated**) population (with a **low dependency ratio**).
- ▶ It has a huge potential in terms of **natural gas** (possess largest proven reserves in the world) and despite having produced **oil** for over 100 years it has the fourth largest proven crude oil reserves in the world.
- ▶ Iran's potential for **tourism** is considerable. Iran is home to 22 UNESCO World Heritage Sites (compared to 17 in Turkey, 5 in Iraq, 18 in Greece, 7 in Egypt, and 23 in the US).

Iranian Economy: Challenges

- ▶ Iranian economy has been functioning below capacity due to years of economic mismanagement, 8 years of war with Iraq, prolonged and at times severe trade and financial sanctions.
- ▶ **High and persistent inflation.** Annual rate of inflation has been around 20% and been persistently high whilst inflation has been falling worldwide.
- ▶ **High unemployment and low female labour participation:** Unemployment has been consistently above 12% with youth and female at 30-40%.
- ▶ **Fragile banking and financial sector.** US financial sanctions against Iran has worsened the risk facing the commercial banks.
- ▶ **Continued dependence on oil revenues:** over 60% of foreign exchange revenues and 40% of government revenues are from oil exports.
- ▶ **Rising income inequality and poverty.**

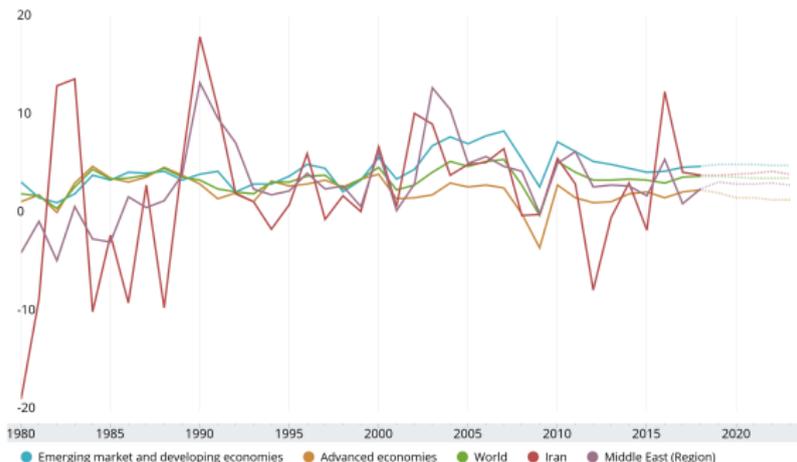
Oil Revenue is a Blessing: Growth of Real Output and Real Oil Export Revenue (per capita), 1937–2010

| Sample Period | Real Output per capita Growth (in percent) | Real Oil Export Revenues per capita Growth (in percent) | Correlation |
|---------------|--|---|-------------|
| 1937-2010 | 2.54 | 2.80 | 0.31 |
| 1960-2010 | 2.14 | 2.80 | 0.47 |
| 1960-1978 | 5.48 | 12.30 | 0.15 |
| 1979-2010 | 0.16 | -2.84 | 0.53 |
| 1988-2010 | 2.20 | 3.63 | 0.33 |

Source: IMF *World Economic Outlook*, OPEC *Annual Statistical Bulletin*, and Esfahani and Pesaran (2009).

Iran and World Output Growths and their Volatilities

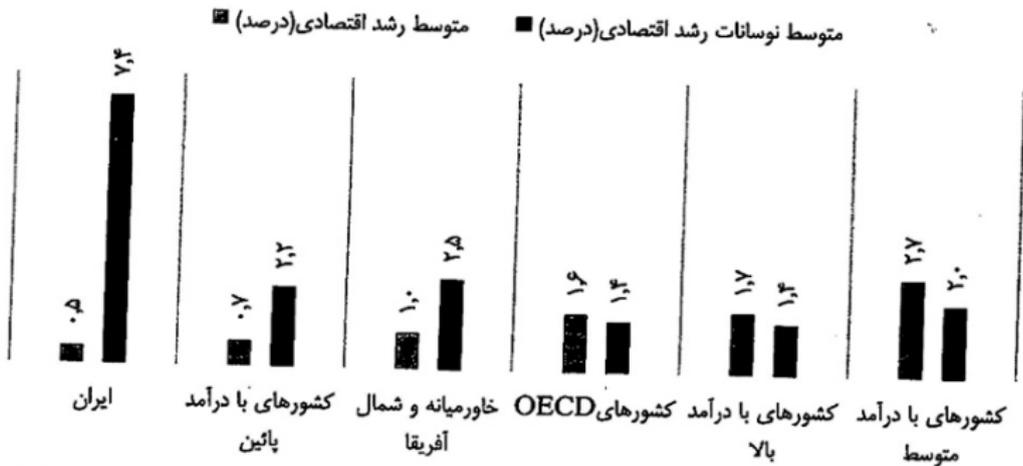
- ▶ If commodity revenue volatility and external shocks are **not managed properly**, they can result in higher GDP growth volatility and **disappointing long-term economic performance**.
- ▶ Since the Revolution the average output growth has been around 2% with volatility of 7.7%, whilst world output growth has averaged at 2.9% with volatility of 1.3%. That is **Iran's economy has been 6 times more volatile as compared to the rest of the world**.
- ▶ We need strong **institutions** and better **macroeconomic policies**.



Output Growth and Volatility in Iran and by Regions

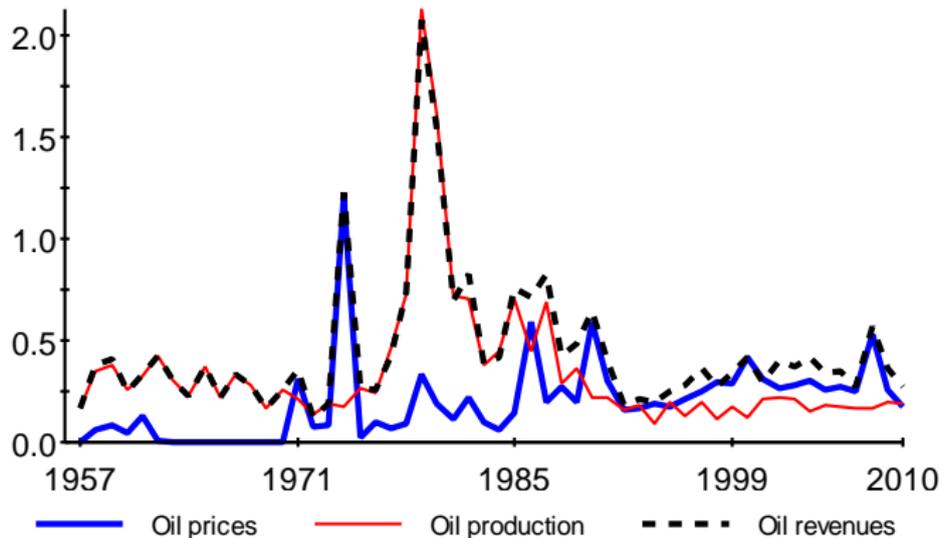
- ▶ **Three main sources of volatility:** oil revenues, sanctions, and mismanagement of the economy.

شکل ۱-۲۰- مقایسه متوسط رشد اقتصادی و نوسانات آن در بازه زمانی ۱۹۸۰-۲۰۱۵



منبع: بانک جهانی

Realized Volatility of Oil Prices, Production, and Revenues, 1957–2010



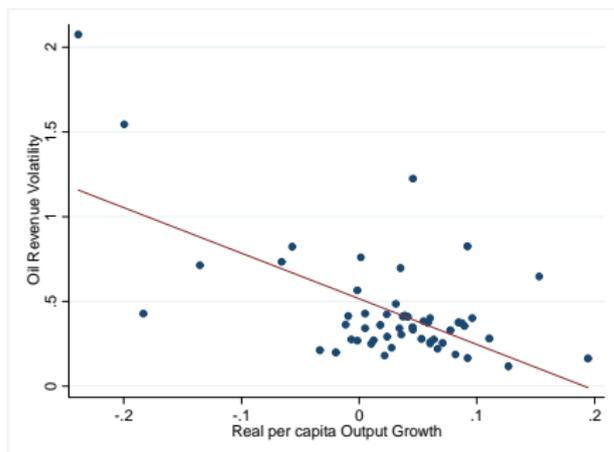
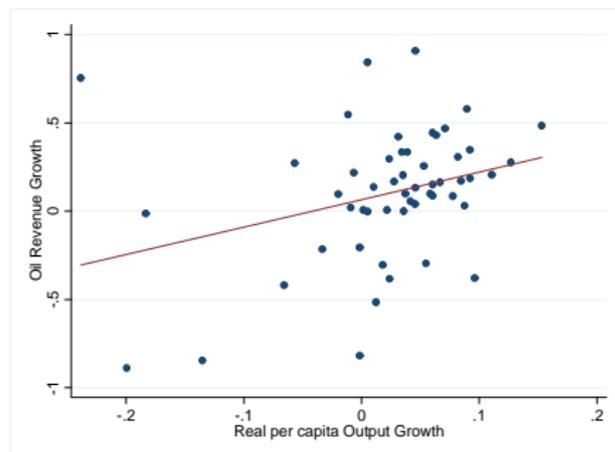
Source: K. Mohaddes and M. H. Pesaran (2014), *One Hundred Years of Oil Income and the Iranian Economy: A Curse or a Blessing?*, in P. Alizadeh and H. Hakimian (eds.), *Iran and the Global Economy: Petro Populism, Islam and Economic Sanctions*, Routledge, London.

Realized Volatility of Oil Prices, Production, and Revenues, 1960–2010

| Sample Period | Oil Price Volatility (in %) | Oil Production Volatility (in %) | Oil Revenue Volatility (in %) |
|---------------|-----------------------------|----------------------------------|-------------------------------|
| 1960-2010 | 20.6 | 34.8 | 45.3 |
| 1960-1978 | 11.3 | 29.3 | 35.5 |
| 1979-2010 | 26.1 | 38.0 | 51.1 |
| 1988-2010 | 27.9 | 18.8 | 35.3 |

Source: K. Mohaddes and M. H. Pesaran (2014), *One Hundred Years of Oil Income and the Iranian Economy: A Curse or a Blessing?*, in P. Alizadeh and H. Hakimian (eds.), *Iran and the Global Economy: Petro Populism, Islam and Economic Sanctions*, Routledge, London.

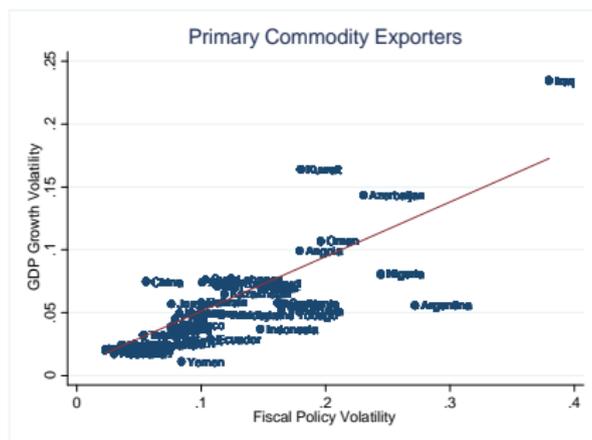
The Volatility Curse: Oil Revenue Growth and Oil Revenue Volatility Against Real per capita Output Growth (1957–2010)



Source: K. Mohaddes and M. H. Pesaran (2014), *One Hundred Years of Oil Income and the Iranian Economy: A Curse or a Blessing?*, in P. Alizadeh and H. Hakimian (eds.), *Iran and the Global Economy: Petro Populism, Islam and Economic Sanctions*, Routledge, London.

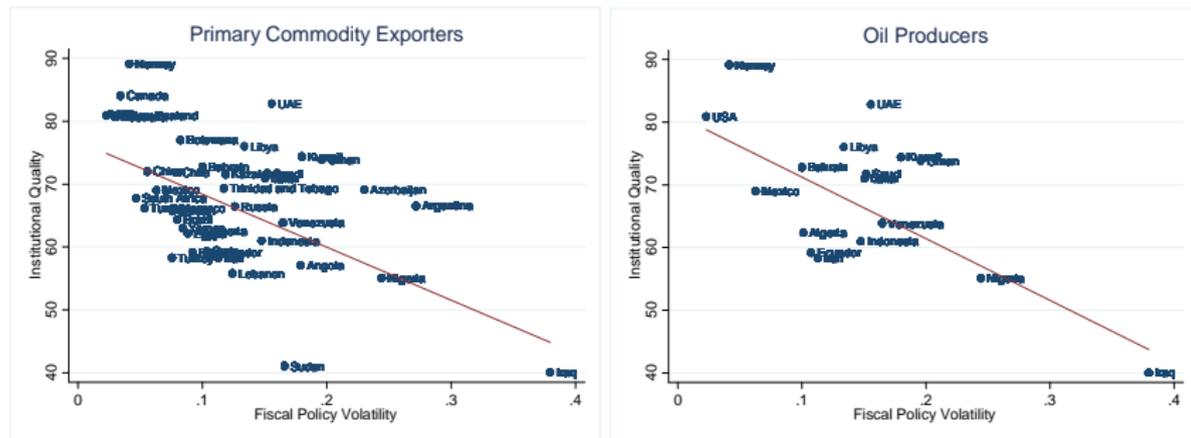
The Role of SWFs and Institutional Quality

- ▶ SWFs have been established for a variety of reasons, ranging from **fiscal stabilization** (that is to help smooth the impact on government spending of revenues that are large and volatile), to **long-term saving** for future needs of the economy, or of specific groups such as pensioners, or for future generations.
- ▶ One of the main short-term objectives of SWFs is to **counter the adverse macroeconomic effects of commodity price volatility**.
- ▶ What is the potential **role of institutions and policy frameworks**, and in particular **fiscal policy**, in dampening the negative effect of CToT volatility.



Source: K. Mohaddes, J.B. Nugent, and H. Selim (2019), *Institutions and Macroeconomic Policies in Resource-Rich Arab Economies*, Oxford University Press.

Scatter Plots of Institutional Quality against Fiscal Policy Volatility, 1961-2013



Source: K. Mohaddes, J.B. Nugent, and H. Selim (2019), *Institutions and Macroeconomic Policies in Resource-Rich Arab Economies*, Oxford University Press.

Notes: This volatility is interpreted as the component of discretionary policy which is not related to smoothing the business cycle, such as changes in political preferences or the decision by the politicians to generate a short-term boom so as to keep the population happy—as was seen in the GCC following the Arab Spring.

Bottom line: Oil Revenue Volatility and Economic Performance

- ▶ Therefore, while abundance of oil in itself is growth enhancing there are two main problems with this oil income for the Iranian economy: one is the volatility of oil revenues, and the second is that it accrues to the government.
- ▶ The fact that oil revenues accrue to the government tends to make the government less immediately accountable for their policies and actions, and increases incentives for **rent-seeking activities**.
- ▶ However, while democracy and accountability are both important, it is also crucial to have a system in place that deals with adverse effects of excess oil revenue volatility.
- ▶ Note that because of the lack of shock absorbers, oil revenue volatility has an even bigger impact on the Iranian economy in the short term.

Policy Implications

- ▶ The establishment of the Oil Stabilization Fund (OSF) in Iran was an important step towards managing the volatility curse. However, the adoption of populist policies during the Ahmadinejad presidency in 2005 resulted in the Fund being used during good times when oil prices were rising, and was thus rendered ineffective as an instrument of stabilization when oil prices started to collapse in 2009.
- ▶ The government can also intervene in the economy by increasing public capital expenditure when private investment is low, using proceeds from the stabilization fund.
- ▶ Alternatively the government can use these funds to increase the complementarities of physical and human capital, such as improving the judicial system, property rights, and human capital. This would increase the returns on investment with positive effects on capital accumulation, TFP, and growth.
- ▶ Improving the functioning of financial markets is also a crucial step as this allows firms and households to insure against shocks, decreasing uncertainty and therefore mitigating the negative effects of volatility on investment and economic growth.

Sanctions: A Counterfactual Exercise

- ▶ The disaggregated nature of the model in Mohaddes and Pesaran (2016) allows us to identify **country-specific** oil supply shocks (due to, for instance, **sanctions, wars, or natural disasters**) and answer counterfactual questions regarding the possible macroeconomic effects of oil supply disruptions on the global economy.
- ▶ Dealing with country-specific shocks raises a new issue which is absent from the global oil supply and demand analysis; namely, we need to make some assumptions about the likely contemporaneous responses of other oil producers to the shock.
- ▶ To allow for the possible cross-country oil supply spillover effects we make use of the structural GIRFs based on historically estimated covariances of the country-specific oil supply shocks.

Sanctions: A Counterfactual Exercise

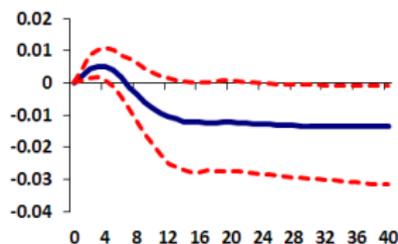


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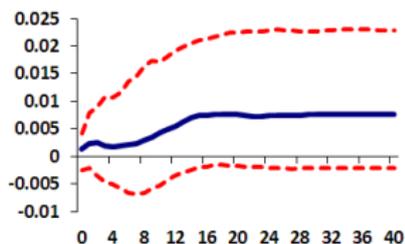


.@NordhausYale "sometimes #sanctions or #embargoes are launched as less destructive means of coercion...such embargoes should be expected to have no effect on world [#oil] prices or production, no impact on the target countries [#Iran]...They are purely symbolic measures." ایران#

Price of Oil



Global Equity



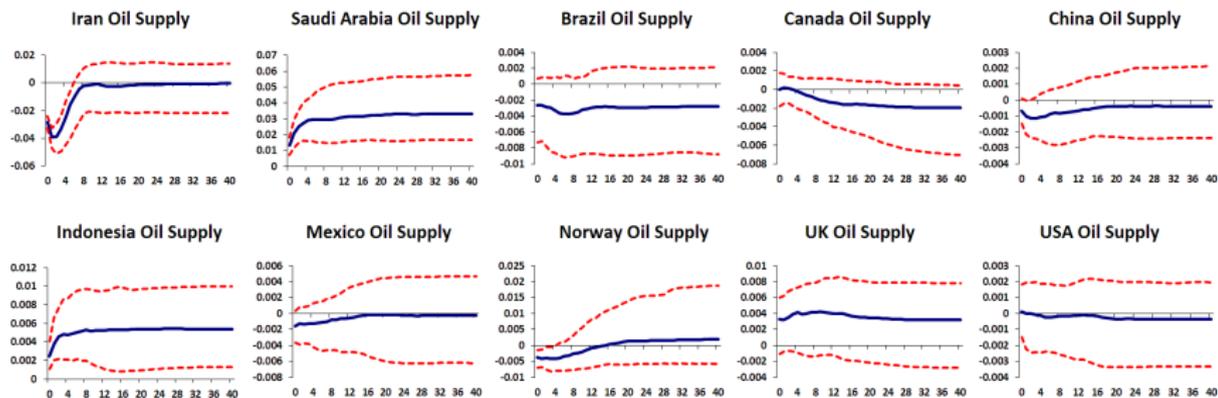
Source: Mohaddes and Pesaran (2016). "Country-Specific Oil Supply Shocks and the Global Economy: A Counterfactual Analysis". *Energy Economics* 59, 382-399.



Sanctions: A Counterfactual Exercise

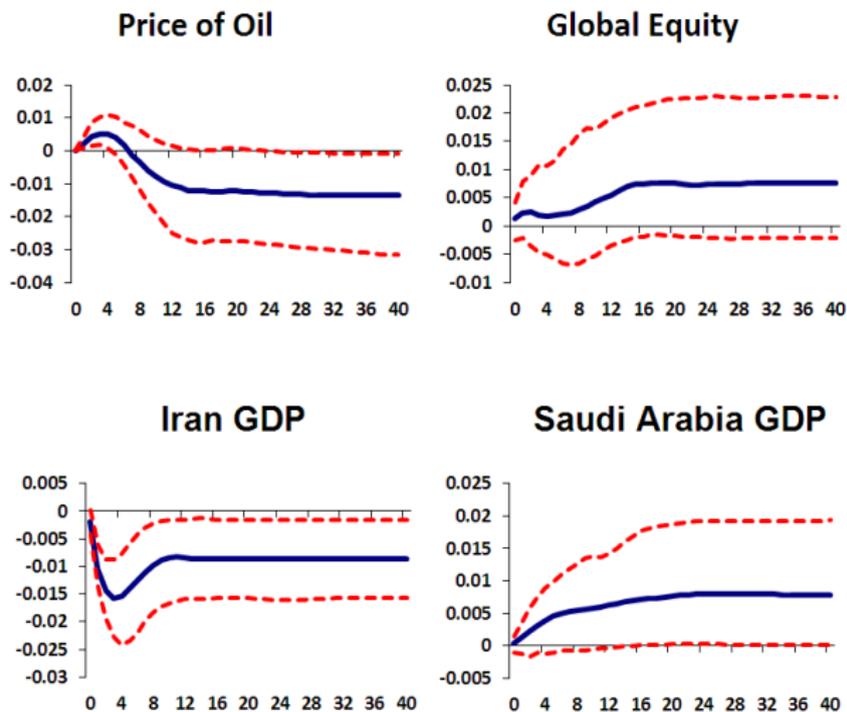
- ▶ Our results suggest that an adverse shock to Iranian oil output, equivalent to a fall in the Iranian oil supply of around 16% in the first four quarters, is neutralized in terms of its effects on the global economy (real outputs and financial markets), which is borne out by the recent episode of oil sanctions against Iran by the U.S. and European countries.
- ▶ This is mainly due to an increase in Saudi Arabian oil production so as to compensate for the loss in OPEC supply and to stabilize the oil markets, which is possible given that Saudi Arabia has a large spare capacity and is often therefore seen as a swing producer at the global level.
- ▶ As a result Iranian real GDP is expected to fall by 6% in the short-run, which is then reduced to around 3.6% over the long run.
- ▶ Moreover, Saudi real GDP increases by 3.2% in response to the negative shock to Iran's oil output.

Sanctions: A Counterfactual Exercise



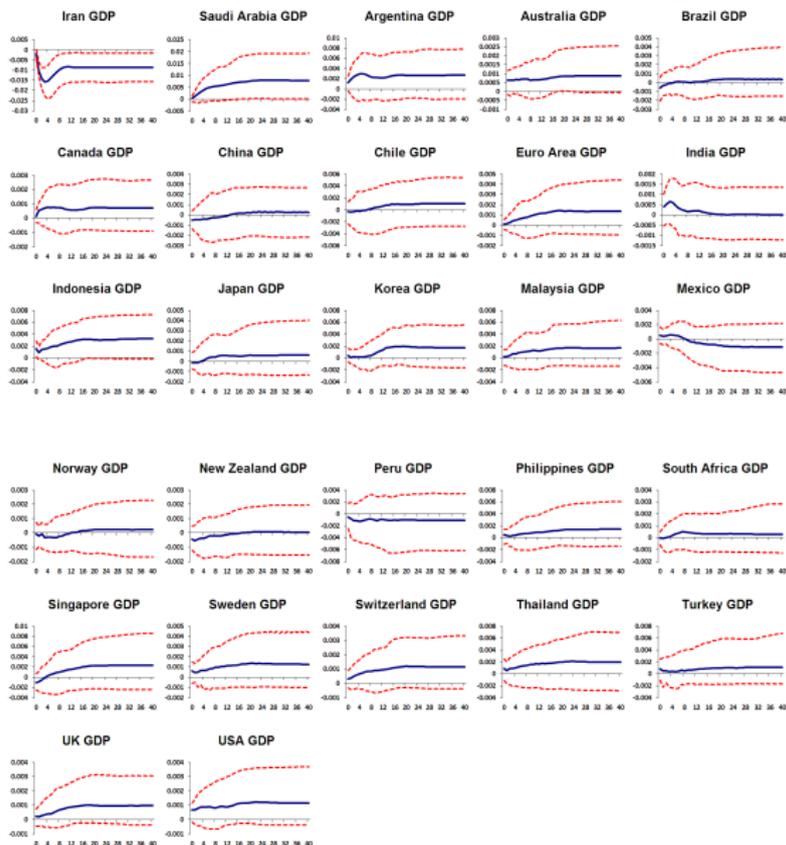
Source: Mohaddes and Pesaran (2016). "Country-Specific Oil Supply Shocks and the Global Economy: A Counterfactual Analysis". *Energy Economics* 59, 382-399.

Sanctions: A Counterfactual Exercise



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Sanctions: A Counterfactual Exercise



Source: Mohaddes and Pesaran (2016). "Country-Specific Oil Supply Shocks and the Global Economy: A Counterfactual Analysis." *Economic Letters*, 159, 289-299.

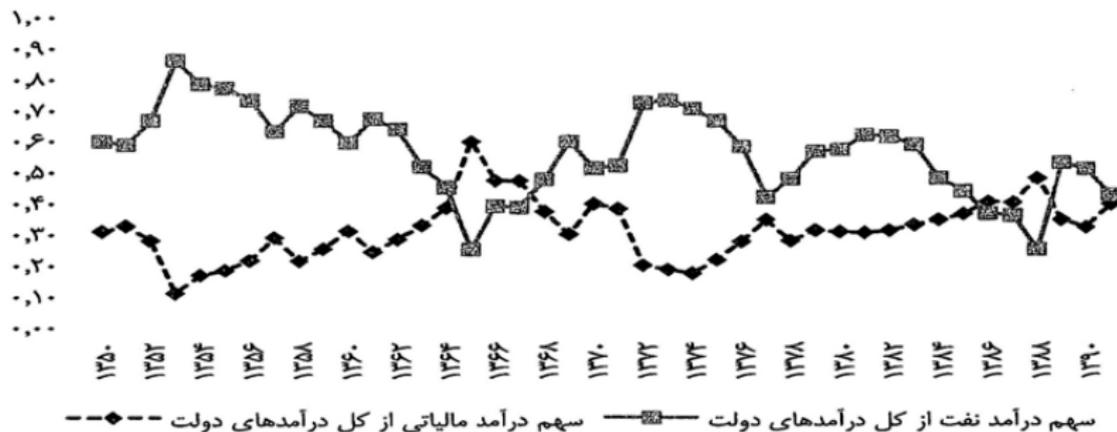


Iran needs a much more Diversified and Efficient Economy

۱۰۰

اقتصاد ایران: چگونگی گذر از ابرچالش‌ها

شکل ۲-۴- سهم درآمدهای مالیاتی و درآمد نفتی از کل درآمدهای دولت (درصد)



منبع: بانک مرکزی جمهوری اسلامی ایران

توضیحات: در این شکل درآمد مربوط به مالیات عملکرد نفت جزء درآمدهای مالیاتی محسوب شده است. این نکته در مقایسه درآمدهای مالیاتی و نفتی دولت می‌تواند باعث ایجاد خطا شود. با حذف این جزء، سهم درآمدهای مالیاتی در سال‌های ۱۳۸۶ و ۱۳۸۷ نیز کمتر از درآمدهای نفتی خواهد بود.

Fiscal Policy

- ▶ **Revenue re-balancing:** raising non-distortionary taxes, such as consumption tax (VAT) and reducing the dependence on oil revenue;
- ▶ **Improved tax administration;**
- ▶ **Spending side:** better targeting of subsidies (electricity, water, petrol). Urgent reforms are needed in the area of energy subsidy, which results in waste, economic distortions and air pollution.
- ▶ Reducing **fiscal dominance.**
- ▶ **Transparency:** on public sector balance sheet (not just the central government)
 - ▶ "publication of debt and asset data would enhance transparency and provide investors greater assurance about the government's capacity to repay debt and ultimately lower borrowing costs.
 - ▶ The Debt Management Office: "The on-going audit of arrears has revealed government arrears of about 30 percent of GDP which brought the debt-to-GDP ratio to near 50 percent in 2016/17. The audit shows that the central government's (CG) arrears are owed to banks, private contractors, and social security institutions."

Badly Needed Structural Reforms

- ▶ It will be important to reform the economic structure, increasing transparency and openness to private sector initiatives and foreign investment and **improve the business environment in general**.
- ▶ This may be very **threatening to existing economic vested interests**. Removal of price controls and untargeted subsidies may also be **politically difficult**.
- ▶ **Reforms of the banking sector** (stricter supervision and increased capitalization).
- ▶ **Labour market reforms** should be in place to increase labour force participation (in particular female).
- ▶ Product and service market reforms.

The Role of Revolutionary Guard in the Economy

- ▶ **Scope of IRGC Activities:** It is estimated that IRGC control between 10-30% of the Iranian economy. There are few public details available about the Revolutionary Guards' business interests. Companies known to be affiliated to IRGC include Sadra Iran Maritime Industrial Company (oil and gas projects), Shahid Rajaei Professional Group (construction), Etemad Mobin Development Company (bought Telecom Company of Iran for \$7.8bn in 2009), Ansar Bank and Sepanir Oil and Gas Engineering.
- ▶ The **economic reach of IRGC** is wide-ranging and cover many other sectors, such as health, agriculture and petrochemicals.
- ▶ Due to the semi-state nature of the companies affiliated to the IRGC, they have **distortionary effects** on the private sector, are **not adequately accountable**, and tend to **encourage cronyism**.
- ▶ With new US sanctions against IRGC, there is the additional concern that IRGC's economic involvement **might deter foreign investors** who fear they could inadvertently end up doing business with entities linked to IRGC.

Growth and NPLs

Fast growth can result in a stabilization or reduction in stock of NPLs through:

- ▶ a reduction in the new flow of NPLs as firms' probability of default falls;
- ▶ an improvement in prospects of firms whose loans may have become non performing, resulting in previous NPLs becoming performing again;
- ▶ an increase in the disposal of NPLs as recovery values improve;
- ▶ and, an increase in bank profitability, leading to higher retained earnings, higher provisions and greater write offs.

Growth and NPLs II

- ▶ Given Iran's moderate growth outlook, banks could thus struggle to grow out of their NPL overhang.
- ▶ Active NPL resolution measures are also needed to bring NPL ratios on a firm downward trajectory over the medium term.
- ▶ These include steps to improve the insolvency system, deal with some problem banks, and facilitate bank restructuring.

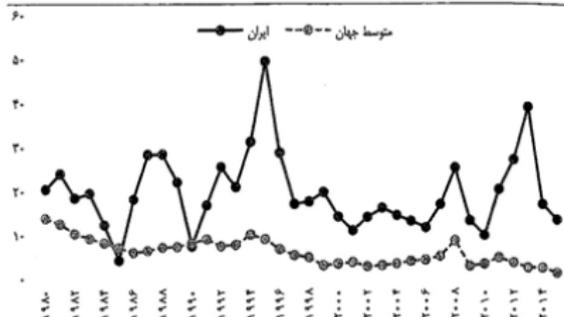
Monetary Policy

- ▶ **Keeping inflation in check.** This will require management of inflation expectations by building confidence in the government and the monetary authorities.
- ▶ A degree of **Central Bank Independence.**
- ▶ **Stability** of the financial system.
- ▶ **Orderly management** of foreign exchange markets!

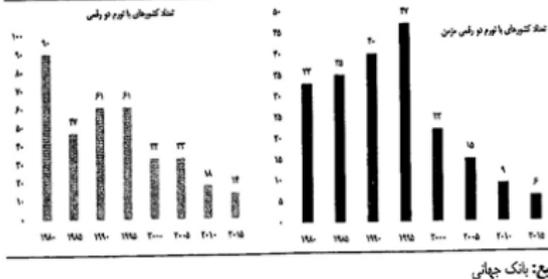
High and Persistent Inflation, 1980-2015

۷۵ ضرورت‌های دستیابی به رشد اقتصادی بالا، پایدار، اشتغال‌زا و فراگیر

شکل ۱-۱۷ - مقایسه تورم ایران با متوسط تورم جهانی (درصد)

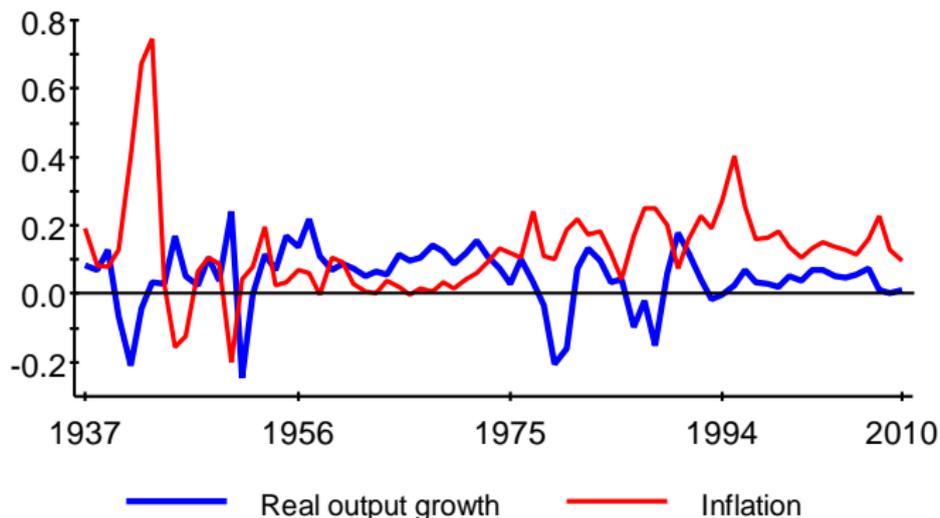


شکل ۱-۱۶ - تعداد کشورهای با تورم دورنگی و تورم مزمن



منبع: بانک جهانی

Real Output Growth and Inflation, 1937–2010



Source: K. Mohaddes and M. H. Pesaran (2014), *One Hundred Years of Oil Income and the Iranian Economy: A Curse or a Blessing?*, in P. Alizadeh and H. Hakimian (eds.), *Iran and the Global Economy: Petro Populism, Islam and Economic Sanctions*, Routledge, London.

Real Output Growth and Inflation, 1937–2010

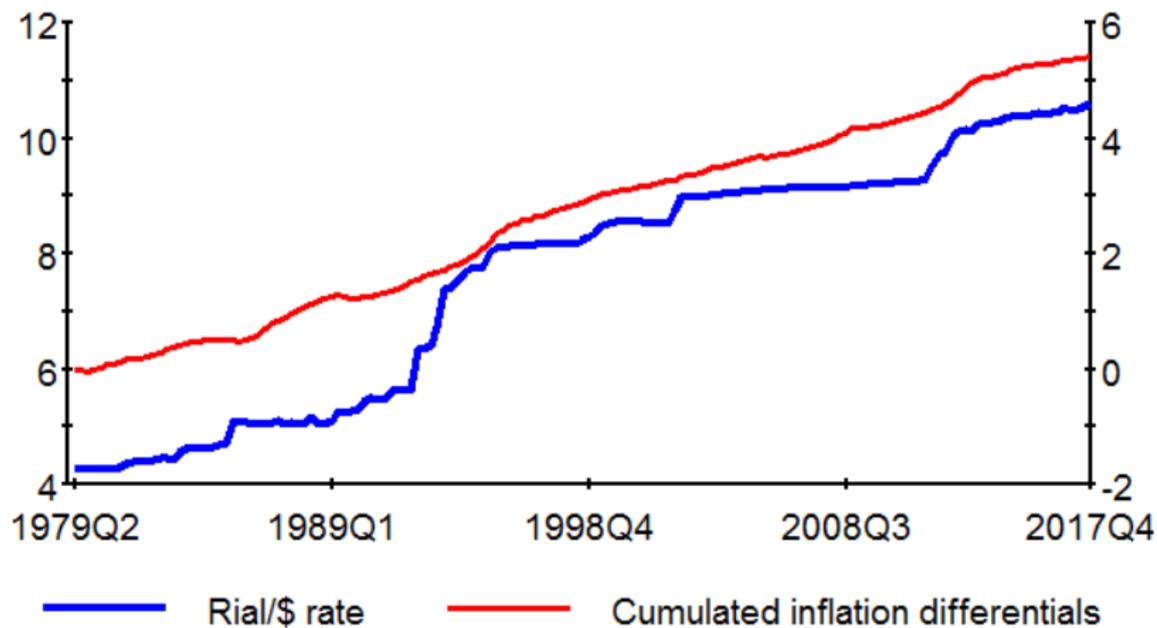
| Sample Period | Real Output Growth (in percent) | Inflation (in percent) | Correlation |
|---------------|------------------------------------|---------------------------|-------------|
| 1937-2010 | 4.96 | 12.69 | -0.39 |
| 1960-2010 | 4.64 | 13.08 | -0.39 |
| 1960-1978 | 8.37 | 6.18 | -0.42 |
| 1979-2010 | 2.42 | 17.18 | -0.14 |
| 1988-2010 | 3.82 | 17.65 | -0.40 |

Source: IMF *International Financial Statistics*, IMF *World Economic Outlook*, and Esfahani and Pesaran (2009).

Proximate Causes of High Inflation

- ▶ Clearly episodes of high inflation have been negatively associated with output growth in Iran.
- ▶ It is shown (see Esfahani et al., 2013) that high inflation in Iran has had negative effects on both real output and investment. Again this is indicative of certain inefficiencies in the Iranian economy.
- ▶ Episodes of high and persistent inflation in Iran are associated with foreign exchange crises (1990-92, 2004-2005, 2012-2013, 2017-2018).
- ▶ Foreign exchange crises and the subsequent large currency devaluation in turn accentuate the inflationary process.
- ▶ This initiates a vicious cycle which is politically difficult to stop and tends to be repeated in an episodic manner.

Proximate Causes of High Inflation



Vicious Circle of Excess Inflation and Devaluation

- ▶ Unless a comprehensive package of monetary and fiscal reforms are undertaken it is clear that in due time (6-8 years) cumulated excess inflation in Iran eventually will lead to a currency crisis which in turn fuels the inflation.
- ▶ The relationship between inflation and devaluation is bi-directional (non-causal).
- ▶ But experience from Latin American countries suggest that to prevent currency crises – it is essential that domestic rate of inflation is brought in line with the level of prevailing foreign inflation.
- ▶ In the words of Gustavo Franco (Governor of the Central Bank of Brazil, 1994-1999) inflation became endemic when **“People and their political representatives voted to give themselves things they could not afford.”**
- ▶ Fiscal responsibility and confidence and capacity building became the corner stones of Brazilian fight against inflation.
- ▶ But to combat inflation, like Brazil, a new social contract is needed that recognizes to balance individual demands and the aggregate economic realities.

Oil Revenue Volatility and Excessive Exchange Rate Volatility

- ▶ Finally, it is important to note that the lack of an appropriate mechanism for the management of oil revenue volatility can also result in excessive exchange rate volatility, as witnessed in Iran particularly since the revolution.
- ▶ We have seen periods of relative stability in the rate of rial to US dollar punctuated with large devaluations of rial, generally reflecting the differential levels of inflation in Iran relative to the rest of the world.
- ▶ We have also seen that high inflation and excess oil revenue volatility both affect output growth negatively, which harms the competitiveness of the Iranian economy domestically (in the case of imports) and abroad (in the case of non-oil exports).
- ▶ But such losses in competitiveness do not show up in the rate of rial to dollar immediately, and their effects work gradually and are often triggered by some exogenous shock, such as major domestic political developments, military treats, or the announcement of new sanctions.
- ▶ The establishment of an effective oil revenue stabilization fund can therefore also play a crucial role in the stabilization of the rial, which is a worthy objective in its own right.

Concluding Remarks

- ▶ Sanctions have, no doubt, harmed the Iranian economy – but one should not underestimate the damage done by years of economic mismanagement.

- ▶ **Iran needs a more resilient economy**, which implies:
 - ▶ strengthened institutions and policy mechanisms which act as shock absorbers in the face of high levels of oil revenue volatility
 - ▶ better conduct of fiscal and monetary policy
 - ▶ growth-friendly fiscal policies as well as structural reforms
 - ▶ private sector investment
 - ▶ diversification
 - ▶ regional development policies should be initiated that give priorities to remote regions that have been left behind
 - ▶ the role of semi-government agencies in initiating politically motivated expenses, and having priority over access to bank loans and credits must also be curtailed.

Concluding Remarks

- ▶ **In order to promote growth**, policies should be devised:
 - ▶ to control inflation;
 - ▶ to serve as shock absorbers negating the adverse effects of oil revenue volatility;
 - ▶ to reduce rent seeking activities; and
 - ▶ to prevent excessive dependence of government finances on oil income.

- ▶ Bottom line: Iran needs to adopt a comprehensive package of fiscal, monetary, financial and structural reforms aimed at addressing its inter-related challenges.

- ▶ **The policy choices are not easy!**

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