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# The Wise Management of Oil Revenue in the Republic of Azerbaijan

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*This paper is devoted to the economy of Azerbaijan as an example of one of the post-communistic countries trying to briefly discuss the actual problems arising from high dependence on natural resources such as: the foreign direct investment, high volatility of public expenditures, social welfare and employment. The main discussion will mainly cover the impact of oil price pro-cyclical behavior in the market, recent financial crisis and strengthening the impact of globalization on revenues from the oil and gas extracting countries which makes inevitable to improve non-oil sector and diversify the export routs to make it sustainable for the most external shocks.*

## 1. Introduction

Before the collapse of the Soviet Union, the motto of the countries comprising it was "Communism". The Hegemony of communistic regimes in the Commonwealth and Independent Countries (CIS), which were named also as BRO countries during the Soviet Union, ended in the 1980s. These countries' newly formed governments refused to espouse communism in the new era of decentralized marked economies and endorsed new economic policies. A variety of economic reforms and a steeper decline of Gross Domestic Product became more evident. In some commodity-investing countries there has been unstable growth medium and long-term, for their economies are always fluctuating, being sensitive to the repeatedly seen booms and busts. There are still some existing drawbacks in these economies, not owing to growth but because of some legal aspects, the biggest one of which is the split of Soviet countries. This caused many problems in the path of the transition of their economies. Azerbaijan, the focus of this paper, was lucky to some extent, for its economy did not start from nothing; it inherited a lot of plants, which supported the country during hard times.

Today, Azerbaijan's overabundance of natural resources, particularly oil and gas, have transformed it economy and infrastructure, and have been the catalyst for large amounts of foreign investment. This has been positive for the country and should be welcomed. However, there are some potential problems as a consequence that need to be addressed for Azerbaijan to continue to thrive.

This paper will begin by discussing the sale of oil and gas in Azerbaijan and the revenue generated from the same and foreign investment. It will then address the main problems facing the country as a result: "Dutch disease", the volatility of public expenditure and the overdependence on a few types of natural resources. Thereafter, the paper will go on to argue that these problems can be avoided through meticulous micro-management of the

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revenue generated. The remainder of the paper will then out how this micro-management can be performed.

## 2. Literature Review

### 2.1 Oil and Gas Revenues and Exposure of "Dutch Disease" Model

The Republic of Azerbaijan is rich in oil and gas. In 1991 it produced 23.5 million tons of crude oil and satisfied about 71.4% of total Soviet Union petroleum needs. Between 1991 to 1997, production fell significantly because of the obsolescence of drilling equipment and then its subsequent rehabilitation, as well as the exploration of wells. But the "Contract of the Century", signed between the Azerbaijani Government and the Azerbaijan International Company (AIOC), has meant billions of dollars have been invested into the Azerbaijani economy by foreign companies. The oil and gas sector contributes around 80-90% of the total FDI of the country. In 2010, the total oil production in Azerbaijan peaked at 50.5 million tons. In 2012, the total oil revenues were 17.2 billion USD and the transfers to the budget constituted 12.6 billion USD (www.oilfund.az). By 2024, the oil and gas revenues are forecasted to be approximately 200 billion USD.

While the financial benefits for Azerbaijan arising from foreign investment and the sale of its natural resources should be welcomed, the Government must be alert to the potential negative consequences for the economy. One problem is "Dutch Disease", a term coined by the British newspaper The Economist in 1977 to describe the impact of the North Sea gas boom on the economy of the Netherlands. The basic idea is that as a nation's currency is driven up through its exploiting its natural resources, other parts of its economy become less competitive, leading to even greater dependence on the sale of its natural resources.

The classical "Dutch Disease" model postulates that high oil revenues significantly affect non-oil traded goods (Corden and Neary 1982), such as agricultural, food producing, textile sectors and non-traded goods as service sectors. In Azerbaijan, oil revenues have caused the prices in other sectors of trade to abnormally rise. Consequently, the sale of oil has eclipsed the export of agricultural sector goods where 40% of employed people of the country is concentrated. This in turn has drastically increased the rate of inflation.

Another problem is that, in the oil sector, the oil revenues during the wave of capital inflows increased the level of imported goods and respectively excited decline in non-oil traded goods in expectancy of a later boom of oil export (Corden 1984, p. 372). This in turn moved much of the employed people to the oil industry.

### 2.2 How to avoid the "Waste" of Oil Revenues?

The overabundance of the natural resources must be prevented by meticulous macro-management of the revenues gained from crude oil and oil products. There is a high probability of predominant domestic expenditure of the resources. This was observed in Algeria and Nigeria and shown in the figures in study of Gelb (1988) when the revenues were not saved abroad and were widely utilized to cover the budgetary deficits and used mainly in public investments as they were accrued over the years.

Azerbaijan should concentrate on how to modernise and upgrade its economy by judiciously using the revenues gained from the oil and gas sector. There is significant pressure to invest the revenue generated from this sector into the public sector and other spheres of the economy, especially those directly connected with heavy industry, such as oil refineries and petrochemical plants.

The active plants were designed to supply the Soviet Union with their production. But it is economically inefficient to support these plants for two reasons. First, their overcapacities. Second, the quality of the products are barely appropriate or not useful at all. Exploration of natural resources can also be guided into the rent-seeking industries, but unfortunately, according to the recent political studies, the petroleum revenues are not always wisely used. Instead, they are being the factor of “feeding frenzy” when the most competitive spheres of the economy are fighting for the rent from the natural resources but end up depleting the potential wealth of the country (Lane and Tornell, 1995).

Fortunately, the Government is aware of this and is implementing quite a successful investment strategy to combat the problems. Besides laying the Baku-Tbilisi-Ceyhan “BTC” crude oil pipeline via lands of Georgia and Turkey, it is financing a big energy project called the Trans Anatolian Natural Gas Pipeline Project “TANAP”, to deliver Azerbaijani gas from “Shah Deniz” fields to the European markets. Moreover, there is a firm decision to finance development of oil refineries within Azerbaijan and beyond its borders. There is a confirmed decision to finance construction of a brand new “Star” Oil Refinery in Turkey. This will create a vertical integration for earlier constructed and will be co-financed with the Turkish government petrochemical complex “Petkim”.

Another energy project within Azerbaijan is a new Oil, Gas Processing and Petrochemical Complex (OGPC), with estimated cost of 15 billion USD. Azerbaijan is moreover financing construction of semi-submersible drilling rig projects. These will eliminate the facility shortage for drilling of exploration and production wells, faced by the operating companies in the Caspian Sea.

In addition, there are fascinating future projects in the energy sector. These include a joint venture between the State Oil Company of Azerbaijan Republic jointly with “OSO Group” to invest in the building of an oil refinery costing 4.8 billion USD in Indonesia and another refinery in Kyrgyzstan (Reuters www.reuters.com).

Besides investment in the energy sector, notable investments are made to improve the infrastructure of the country. For example, the railway line “Baku-Tbilisi-Kars” is currently financed by Azerbaijan, which will ease and improve trade relations of Azerbaijan with bordering countries and accelerate the process of integration with Europe. Reconstruction of the “Samur-Absheron” water channel and the laying of a new water tunnel, “Oghuz-Gabala”, will supply Baku with quality water in a reliable system with sustainable quantities. Attention has also been given to improve the socio-economic welfare of those who still live below the poverty line, especially the refugees who were driven from their lands during the “Nagorno-Karabakh” ethnic conflict.

One of the unique investments of Azerbaijan is made in education. Each year under the "State Scholarship Program" hundreds of students are sent abroad to study in prestigious universities of the World. (State Oil fund of Azerbaijan, www.oilfund.az).

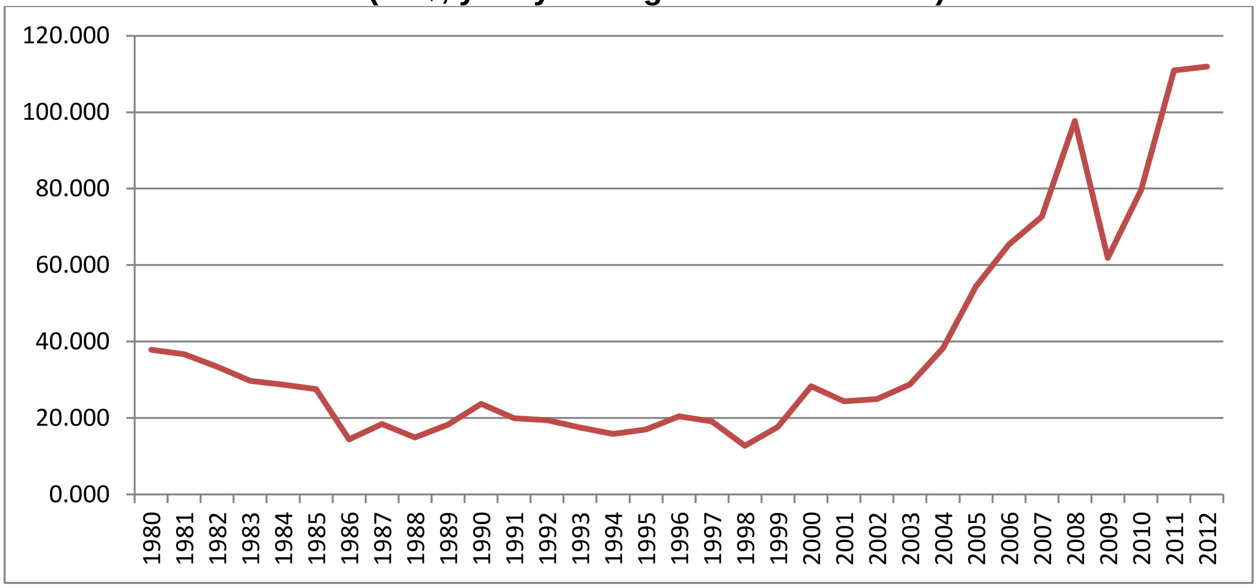
To exterminate the future dependence of the country from the natural resources, in 2006 there was established an investment company with a statutory capital of 90 million USD. This company is called "AZPROMO". It has a range of long-term investment opportunities in the non-oil sector of Azerbaijan, which it will present to foreign investors to attract their endowments into joint-stock companies.

### 2.3 Macroeconomic Policy and Management of Oil Wealth

Primarily, the long-term macroeconomic policy strategy of the country is to direct the revenues from the energy sector into the non-hydrogen sectors, as well as to improve their competitiveness in international markets, diversify the export routes and attract foreign direct investment into the potentially rentable spheres of the economy. All this is being done to gradually lower the dependence of the country on oil and gas revenues. As a result of a smart policy carried out by the ex-President of Azerbaijan, Heydar Aliyev, in 1999, the Government established the State Oil Fund of Azerbaijan. Its main goal is to produce sovereign wealth fund to accumulate the revenues from the natural resources to meet the current financial shortages and allocate them equally among future generations through clever asset management. The total assets of the fund at the moment are 32.7 billion USD.

Besides saving funds, they should play an institutional role in eliminating the effects of volatile commodity prices, which carry the pro-cyclical behavior as what is usually observed in business cycles. Under the volatility of commodity market, the funds must be taking some steps in defining of saving or dis-saving strategy.

**Table 1: World market price for crude oil, 1980-2012 (US$, yearly average of main sources)**




Source: IMF International Financial Statistics Database.

Yearly calculated spot Dated Brent average prices since the year of 1980 are clearly illustrated in Table 9. As per the graph, the average price of crude oil in 1980 was about 38 USD/bbl. The average price dipped down to 12 USD/bbl. in 1998 - the lowest value since 1980; however, it managed to get back to its reference price - 38 USD/bbl. in 2005. Steady rising prices were observed till 2008 when the average price was at the level of about 97 USD/bbl. Due-to the financial crisis the average price of Dated Brent bottomed out 62 USD/bbl, but it managed to recover and keep on rising, reaching the highest ever average point of 112 USD/bbl.

The interesting fact is that Government revenue is fluctuating with the change of oil prices. Another intriguing moment is that the ownership structure between international operational companies is depending on the revenues the state is earning (Cotula 2012).

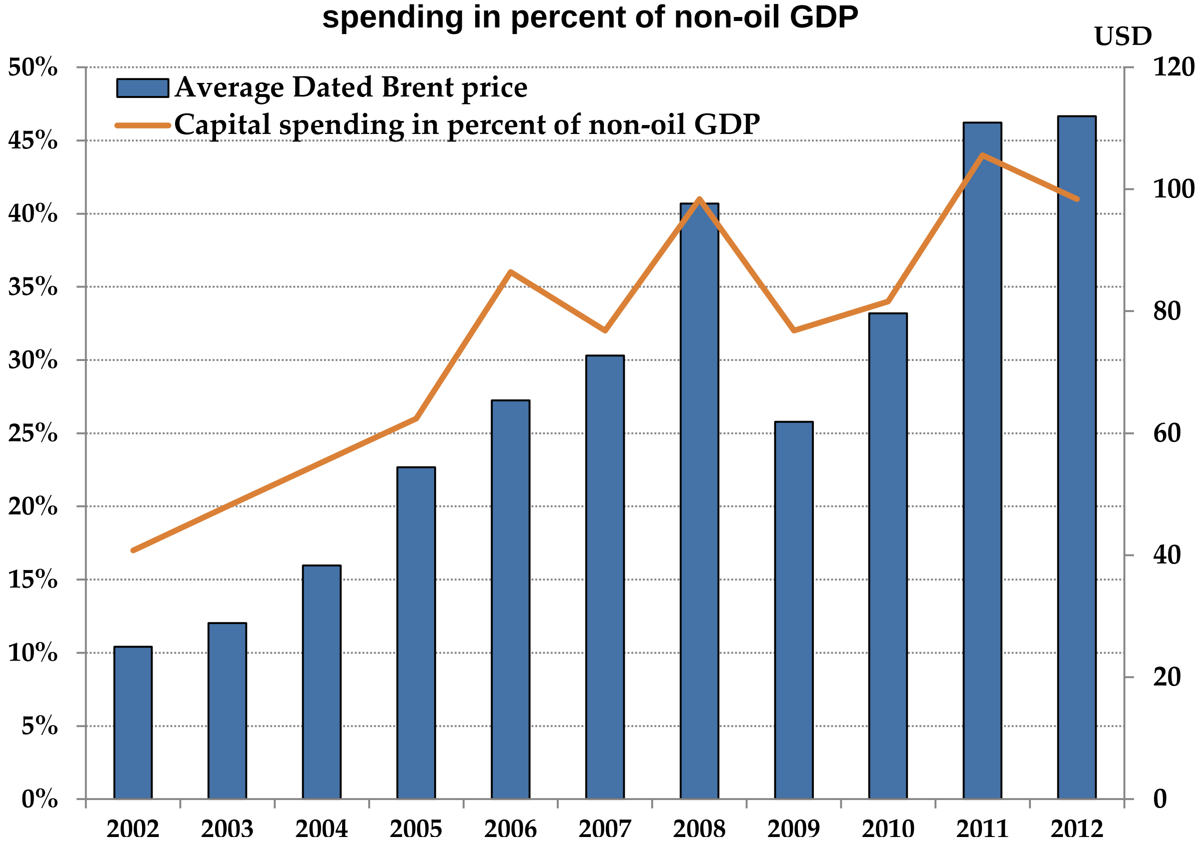
As becomes clear, Azerbaijan`s mid-term fiscal policy must be concentrated mainly on supporting non-oil GDP with sufficient capital spending to improve non-oil sector and stimulate the export of non-oil traded goods by making them in the future competitive and attracting for international markets. For this reason on a mid-term fiscal planning, the state should take into the consideration the highly volatile price change in the market and even pay attention to the pro-cyclical behavior of historical data trajectory. Regarding to the data retrieved form the State Statistical Committee of Azerbaijan the capital expenditure (CAPEX) of the country in percentage of non-oil GDP is showing the highly significant positive absolute value with average spot price changes of Dated Brent.

$$\rho_{X,Y} = \mathrm{corr}(X,Y) = \frac{\mathrm{cov}(X,Y)}{\sigma_X \sigma_Y} = \frac{E[(X-\mu_X)(Y-\mu_Y)]}{\sigma_X \sigma_Y},$$

Where E is the expected value operator (mean), cov means covariance, corr means correlation and δ which means standard deviation.

Referring to the above-mentioned formula, the correlation between two indicators has given the value of 0.96726 which indeed proves the proposed hypothesis.

**Table 2: Correlation between the Avr. Dtd. price with Capital spending in percent of non-oil GDP**




Stable expenditures of the country to timely finance the Government`s needs mostly depend on how much the state is earning from the oil and gas sector. If the revenues are higher than expected then, the surplus should be saved for a rainy day, in case the oil prices fall or the production decreases in the future.

### 2.4 Experience of Developed Oil Rich Countries Which can be Beneficial for Azerbaijan

It should be taken into the account that in a long-run period the price of oil is quite uncertain and makes a moral hazard in making a decision - how much to be invested and how much to be saved. To solve this problem, the discount rate could be applicable to create a time path that will define the proportion of investment and disinvestment. Another argument approach is coming from John Hartwick who proposed to invest all profits from natural resources into a capital stock, machinery and technology in order to achieve high revenues from evolutionary technology and use it for consumption (Hartwick 1977). By this assumption, it becomes clear that there is no inequality between the future and current generations and they are better off with the same interest bearing capital stock. By the theory of utility maximization it becomes clear that in comparison with the current generation, the future generations will be better off in terms of consumption if technological progress carries on. Unfortunately, this theory could not be applied to the country like Azerbaijan, which is still in a transition period and which needs to support the deficit of the current generation, especially of the refugees and the some people who still live beyond the poverty line.

To avoid all these ambiguities, Azerbaijan could benefit from drawing on the experience of developed countries rich in oil and gas, such as Norway and United States. The Norwegian Pension Fund was established in 1990. According to the Sovereign Wealth Fund rankings total diversified assets of the fund at the moment are about 715 billion USD. Proportion of the asset classes is set by the Finance Ministry (equities: 60 percent; fixed income: 35 percent; real estate: 5 percent) and regions (continents; Norway – Ministry of Finance, 2010, 20). The allocation and future withdrawals from the fund are totally bound to the government budget.

The main idea of the fund is to finance the non-oil deficit of the country (non-oil revenues subtracting its expenditures). The strategy of the fund is to gain 4 percent of rate of return on a real capital stock in a long-run with a maximum possible moderate risk, which tells about its passive investments. The non-oil deficit of the country was small until the year of 2009 when it spiked at 4 percent of GDP. Thereby, the rule of “4 percent” was designed in order to prevent the possible slowdown and cover the non-oil deficit of the country by investing in capital stock with expected 4 percent real rate of return which will be saved for present and future generations. (Bacon and Tordo 2006; Auty 2006; Eriksen 2006; Velculescu 2008) Even though there was observed a loss of 23 percent on investments in 2008 due-to financial crisis, the fund could in a short time recover it in the year 2009, gaining 26 percent return on investment (Norway-Ministry of Finance 2010).

In light of what has been said previously, Azerbaijan should use a large amount of its revenue to help the current generation, especially refugees and those who still live below the poverty line. In this context, Azerbaijan in short and mid-run can also benefit from experience of Alaska Permanent Fund, which was established in 1976 with total assets of 47 billion USD (APF, 2013). There is a reserved part and unreserved part of the Pension Fund. By law the reserved part cannot be used for funding the expenditures of the State, whereas the half of the capital income averaged over five years can be tranche to the residents of Alaska as dividend payments. The estimate wealth per capita of the fund is about 64,000 US dollars (Alaska Permanent Fund Corporation (APFC), 2013).

## 3. Conclusion

This paper has endevoured to discuss how Azerbaijan has benefited from the sizable increase in revenue generated from its natural resources and foreign investment, while also highlighting some of the potential problems of the same. ‘Dutch disease’, volatility of public expenditure and overdependence on a few types of natural resources (particularly oil and gas) are all problems that Azerbaijan must avoid by meticulously micro-managing the revenue generated through a diverse range of strategies. One strategy is to invest in more companies such as AZPROMO, which has a large budget for attracting foreign investors in the non-oil sector. Another is to direct revenue from the energy sector to the non-hydrogen sectors, and to stimulate the exportation of non-oil traded goods. Moreover, institutions such as the State Oil Fund of Azerbaijan, in which large amounts of revenue generated from natural resources are being saved, can help to eliminate the effects of volatile commodity prices. Finally, investment in the current generation, especially refugees and those living below the poverty line, will also make a difference. With all these strategies in place, Azerbaijan can build a diversified, sustainable and, consequently, robust economy that will enable it to continue to flourish for years to come.

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