

The Impact of Drug Economy on Macroeconomic Aggregates: Evidence – Afghanistan

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Abstract

The main problem that GDP and the BoP-data are confronted within developing countries is the fact that informal and illegal transactions are not included in this data. Therefore, the published statistics do not show a true picture with respect to developing countries' economic performance. This problem is tremendously large in Afghanistan, a country with a very large drug sector. The main objective of this study is to investigate the impacts of the drug (opium and heroin) sector on macroeconomic aggregates in Afghanistan over the period of 2011 – 2015. The study is based on a descriptive statistical approach, using GDP measurement approaches, BoP format and floating exchange rate regime theories. The net export values of the Afghan drug sector are gathered and secondary data is used. Results show that Afghanistan's actual¹ GDP was an estimated to US\$ 18.74 billion by 2011, of which US\$ 2.4 billion is share of drug income. In the same year actual² trade deficit was estimated to US\$ -5135million, however, drug income offsets the deficit by US\$ 2400 million. Furthermore, due to a huge trade deficit Afghani must loss its value because Afghanistan's central bank has to supply Afghani and buy foreign currency to offset the trade deficit gap, however, Afghani is not depreciated yet. Thus, the drug income circulates in currency market of the country, which keeps Afghani exchange rate stable. Finally, conclusions are made that the drug sector made official macroeconomic data unrealistic and positively supported GDP, balance of payments and Afghani exchange rate in the country.

Keywords: Afghanistan, Trade Deficit, Current Account Adjustment, Foreign Exchange, Underground Economy

JEL Classification: N55, H62, F32, F31, E26

Description of Data

¹ In 2011, Official GDP was estimated to US\$16,34 billion and drug GDP US\$ 2.4 billion. Thus, actual (official plus drug) GDP = 16,34 + 2.4 = US\$ 18.74 billion.

² In 2011, Official trade deficit=-7,535, Net drug export US\$ 2400 million. Thus, Actual trade deficit US\$-5135 million.

In recent years a significant number of researches have focused on the relationship between drug economy and macroeconomic aggregates, these studies have used different data sets and empirical strategies. It has long been thought to have a huge impact on the GDP, BoP and exchange rate. Thus, to identify aggregate financial inflow of drug (opium and heroin) economy as well as show its impacts on official GDP, BoP and Afghani exchange rate in Afghanistan, secondary data was used. Secondary data was collected due to the difficult and cost intensive alternatives, such as interviews. However, currently there are a number of accurate and detailed joint studies on Afghan drug economy, conducted by national and international organizations such as: CSO (Central Statistics Organization, Afghanistan), MCN (Ministry of Counter Narcotics, Afghanistan), IMF (International Monetary Fund), WB (World Bank), UNEP (United Nations Environment Program), UNODC (United Nations Office on Drug and Crime), DAB (Da Afghanistan Bank). Furthermore, a descriptive statistical approach was used to analyze the data and the data collected for this study include the following economic indicators.

- 1) Annual monetary value of opium and heroin
- 2) Opium and heroin production quantities and provinces
- 3) Annual reports on GDP, BoP and Afghani exchange rate
- 4) Drug export values
- 5) Afghani exchange rate against US\$ and Euro
- 6) Drug trafficking routes

The size of Afghan unobserved (illegal and informal) economy is large and extremely complicated to estimate. For instance, large numbers of timber and precious stones are smuggled as well as large numbers of legal activities are done informally. Therefore, this study only focuses on the magnitude of opium’s and heroin’s financial contribution that disappears from official statistics specially GDP, BoP and Afghani real exchange rate.

Research Question/Theoretical contextualization

Afghan Drug Market

Potential opium and heroin cultivation area in Afghanistan:

UNODC (2015, p. 12), reported that the total area under opium poppy cultivation took place in the Southern, Eastern and Western regions of the country over the period 2011-2015 (Table 1).

Table 1: Opium poppy cultivation area in Afghanistan, 2011-2015 (Hectares)

Year	2011	2012	2013	2014	2015
Area under opium- poppy cultivation	131000	154000	209000	224000	18300

Source: Processing of author on data provided by UNODC & MCN (2015, p. 12)

Potential opium /heroin production and trend in Afghanistan:

Opium and its derivatives produced in Afghanistan are trafficked in form of raw opium and pure heroin³, seized, consumed domestically in various forms, stored for later use, etc. In addition, Afghan drug export routes are Turkey (important transit country for opium and heroin trafficked from Afghanistan to Europe), Central Asia, Pakistan and Iran. Hence, table 2 shows the potential size of opium and heroin produced and exported in each year of interest.

Table 2: Potential opium & heroin production, cultivation area and export values, 2011-2015 (Tons)

Year		2011	2012	2013	2014	2015
Potential opium yield (tons)		5800	3700	5,500	6400	3300
Potential heroin produced (tons)		83	264	364.5	413	181
Domestic consumption (tons)	Opium	175	175	175	175	175
	Heroin	12	11.9	12	12	8
Seized in Afghanistan (tons)	Opium	42	80	155	116	66
	Heroin	26.4	61	9,7	31	10
Ready for export (tons)	Opium	5315	1595	2200	2200	1800
	Heroin	44.6	191.4	342.85	370	163

Source: Processing of author on data provided by UNODC & MCN (2015, pp. 12-33)

The historic findings show that massive illegal /unobserved economic transactions take place in the developing world that results to bias official economic statistics. Nevertheless, in order to find possible solutions for the research question some theories, definitions and views on unobserved/drug economy and its relation with official statistics are analysed. Drug (heroin and opium) production and distribution is a key income generating product in Afghanistan. However, drug is an illegal economic activity, therefore, its financial inflows are excluded from official macroeconomic reports. This exclusion strongly impacts macroeconomic indicators as well as diverts the actual economic performance of the reporting country.

All goods and services produced in an economy for the purpose to be supplied and demanded in markets, whether they are licit or illicit, that escape from official estimations in GDP and Bop is known as unobserved economy (Schneider & Enste, 2000).

Afghan central statistic organization(CSO) has confessed that most income generating activities and transactions take place informally and thus make it complicated to evaluate and measure the exact size of aggregate income, expenditure and output. Although, in such a complicated situation formal data collection is difficult to estimate, but the CSO struggles to estimate the GDP using the expenditure approach. The CSO further added that all smuggled and illegal items are not included in official macroeconomic reports, neither in form of output nor in form of income (Afghanistan Central Statistics Organization, 2014/2015, p. 131).

Gross Domestic Product (GDP) is the prevailing market value of all final products produced within a country in a given period of time, usually three month or a year (Mankiw, 2012, p. 497).

³ A conversion ratio of 7:1 (7 kilograms of opium are needed for producing one kilogram of heroin of unknown purity) was used and out of every 100 kilograms of opium, 59 kilograms are converted into UNODC (2015).

Opium and its derivatives are the significant economic strength for Afghan economy, as the net monetary value of Afghan opium and heroin economy equaled approximately half of the country's gross domestic product (GDP) in 2004 and compromised 15% of Afghanistan's GDP in 2011 (Civil- Military Fusion Centre (CFC), 2012).

The United states developed a series of accounts and measuring methods (aggregate income, aggregate expenditure and aggregate production method) in 1964 that was used to evaluate the overall economic performance of a nation. These methods deliver identical results although, data used in measuring process is collected from public and private sectors (Landefeld, et al., 2008, p. 196).

According to Pilbeam (2013, p. 32), BoP (balance of payments) is a scientific description of all economic transactions of a specific economy undertaken annually with the rest of the world. It is the most significant statistical report of an Economy, as it shows the size of goods and services exported and imported. Moreover, it shows whether a country has borrowed much from or lent to foreigners as well as whether the central bank has increased or decreased its foreign currency reserves. BoP is divided into following sub- accounts:

- I The current account,
- II The capital & financial accounts,
- III The settlements account.

Currency inflows and outflows through exports and imports of goods with the rest of the world is recorded in the statement of current account. Capital & financial account records changes in assets and liabilities of private & public sectors and finally the settlement account deals with changes in assets and liabilities of central bank (Pilbeam, 2013, p. 32).

Exchange rate, is known as the price of one currency in term of another. In flexible exchange rate regime, the exchange rate can be determined by demand and supply forces, in this regime the central bank does not play any role to intervene or to fluctuate the exchange rate. However, sometimes the central bank is forced by a third party either to appreciate or depreciate the exchange rate. Thus, this intervene is called "dirty Float". Consequently, the central bank intervenes by suppling and demanding foreign currencies in order to reverse trade deficit and trade deficit causes to run capital account in surplus (International Economics Study Center, 2007).

Based on literatures opium and heroin production is a key income source in Afghanistan and for this reason potential export value of opium and its derivatives attracted the most attention of authors. Drugs are the last economic factor among many that defines enormous macroeconomic impact on Afghanistan's official economic performance. Its impact on the economic performance of the legal sector actually depends on what share/size of this export value actually enters into the economy, how this share is being divided between different actors, and how these different actors have been allocating their income between investment, savings and consumption. Thus, the net export value of drug economy, which is excluded from officially reported GDP, generates demand for domestic as well as foreign products. Although, this amount is not recorded in official balance of payments data, it has a net: positive impact on official balance of payments statistics (Martin & Symansky, 2006, p. 30).

According to Dornbusch & Fischer (1985, p. 25), numerous illicit and informal economic dealings that reach the market not only leak from official gross national product (GNP) measures but also outflow from rule and regulation. For instance, those who are paying cash for Handyman's services could be contributing in an economic dealings. Yet, its value is not recorded in GNP statistics. Similarly, economic transactions undertaken by friendly native bookmakers, perhaps dissaper from the economy's Gross National

Product (GNP) measuring process. Consequently, all illicit and informal particularly drug dealings disappear from official GNP estimation process.

Most economic activities vanish from macroeconomic data collection process, such as underground economic activities, informal economic activities, illegal economic activities as well as those economic activities which are undertaken for private purposes. Additionally, some economic activities may have leaked from official GDP estimation process because of discrepancies in elementary data collection process. Thus, such economic activities are the representative of un-observed economy. Therefore, income generated and products produced through these channels are excluded from the basic macroeconomic statistics (OECD, 2002, p. 36).

Opium cultivation is illegal but labor intensive and the most expensive product among all agricultural products in Afghanistan. Afghan drug trade (Opium and heroin) generates more than one-third of the whole national income, Afghan farmers receive billions of US\$ each year via opium and heroin production and inject a massive income into Afghan rural economy. Hence, Afghan drug industry has been supporting Afghan balance of payments positively and facilitating conservative macroeconomic management and has been supporting domestic currency (Ward & Byrd, 2004, p. 26).

The theoretical base of this study is based on the studies and definitions of well-known authors on unobserved /Afghan drug economy, GDP, BoP and Afghani exchange rate against US\$ and Euro. This paper is a scientific illustration which shows that drug economy plays an important role in Afghanistan's official economic sector, therefore, strongly impacts and supports the entire macroeconomic indicators particularly GDP, BoP and Afghani real exchange rate in the country over the period of 2011-2015.

Large Literature exists about the nature of unobserved economy which declare that monetary value of unobserved economy is excluded from official statistics. This exclusion creates variation and misgauge official macroeconomic data measurement process. As GDP and BoP gauge the size of entire economic performance of the country. Similarly, the size of Afghan economy is guided by official statistics on GDP and BoP. However, there is a heavy vanished force in today's Afghan market which is recognized for its fabulous economic impact on official statistics, called drug economy. Thus, Afghanistan officially reported GDP and BoP -statistics do not represent the actual size of Afghanistan's macro-economic performance. Afghan drug and informal economy is enormously large and a complicated area in term of estimation. Therefore, this study only focuses on Afghan drug / opium & heroin production and its financial contribution that disappear from licit GDP and BoP statistics as well as shows its impact on Afghani exchange rate against US\$. A detailed description of the changes induced by drug inflows on GDP, BoP and Afghani exchange rate will be carried out guided by the following research question.

Given the importance of Afghanistan's drug economy, to which extent reported macroeconomic aggregates (GDP& BoP) may be biased by the unrecorded and illegal transactions of the country's drug economy?

In this question it is descriptively illustrated that summation of drug export value with officially reported GDP for each year in this research would be the actual Afghan GDP. Moreover, as drug export value partly offsets the trade deficit, therefore, the actual trade deficit would be obtained as: the drug related net export value is deducted from official trade deficit so the deviation is the impact of the drug sector. Furthermore, in case of huge trade deficit Afghani must be depreciated because Afghanistan central bank has to buy foreign currency in order to offset the trade deficit gap. But Afghani is not depreciated yet. Because it is the drug sector that attracts foreign currencies and indirectly gets into circulation and keeps Afghani exchange rate stable in the country.

Field research design/ Methods of data gathering

Afghanistan is well-known for the cultivation of opium poppy and production of opium derivatives specially heroin. The key concentrated regions for opium cultivation in the country are Hilmand, Farah, Kandahar, Badghis, Uruzgan, Nangarhar, Nimroz, Badakhshan, Day Kundi and some other provinces (UNODC and MCN, 2015, p. 12). Therefore, all the country has been chosen as research area over the period 2011 - 2015.

The major limitation of the descriptive analysis arises from following fundamental facts and deficiency of accurate representative data regarding the Afghan economy, is characterized as follow:

- 1) Less developed
- 2) War
- 3) Huge informal and illegal sector
- 4) Corruption.
- 5) ODA (Official Development Assistance)

Therefore, it is mentionable that due to the above limitation and huge informality in Afghan economy one cannot claim that the official macro-economic data explains exactly the real image of the economy. In addition, a high volume of duty free imports to NATO forces, NGOs, embassies, ministries and smuggling routes were considered as other main problems which makes the official data less representative for the descriptive analysis.

As a result, this study just relies on secondary data which was officially reported by Afghan authorities and international organizations. Secondary data reported by Afghan authorities and international organizations was provided as input to descriptively analyze and understand sufficiently large variation between Afghan officially reported data on GDP, BoP and drug /illegal data on GDP and BoP. Moreover, the author of this study brought legal and illegal values of economic performance together and found the actual size of Afghan macro-economic performance on GDP and BoP as well as explained stability of Afghani exchange rate over the period of 2011 - 2015.

Results

Based on descriptive analysis, this study has produced clear results in following steps:

The mixture of Afghanistan's official/licit GDP and the drug/illicit GDP will be actual GDP of the country over the period of 2011-2015, see (Table 3) and (Table 4).

(Table3) shows, Afghanistan's official/licit GDP over the period of 2011-2015. For instance, in 2011, the official/licit GDP of the country was estimated to US\$ 16.34 billion⁴ (UNODC, 2011, p. 3).

Table 3: Afghanistan's official (licit) reported GDP, 2011-2015 (US\$ billion)

	2011	2012	2013	2014	2015
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⁴ In 2012 US\$ 18.95 billion, in 2013 US\$ 21.04 billion (UNODC and MCN, 2013, p. 12), in 2014 amounted to US\$ 21.2 million (UNODC, 2015, p. 3). Similarly, in 2015 Afghan official reported GDP amounted to US\$ 19.2 billion (World Bank, 2016).

Official (licit) GDP	16.34	18.95	21.04	21.2	19.2
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Source: *Processing of author on data provided by UNODC/MCN (2011-2015) and World Bank (2016)*

(Table 4) demonstrates, that in 2011 Afghan net and pure drug/illicit GDP⁵ was estimated to US\$ 2.4 billion UNODC (2011, p. 3)⁶.

Table 4: Afghanistan’s drug (opium/ heroin) GDP, 2011-2015 (US\$ billion)

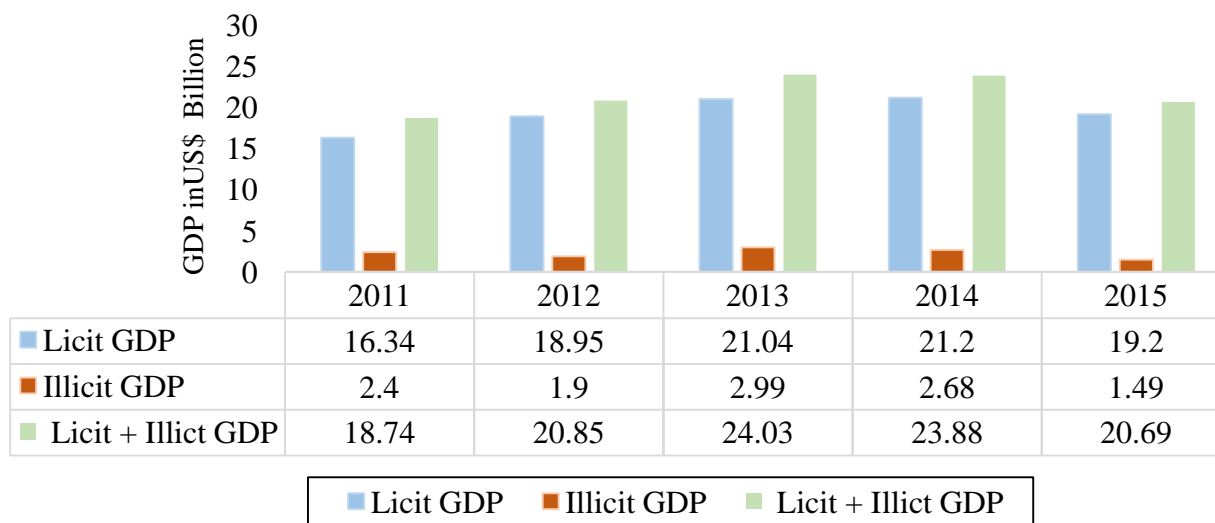
	2011	2012	2013	2014	2015
Drug (illicit) GDP	2.4	1.9	2.99	2.68	1.49

Source: *Processing of author on data series provided by UNODC (2011-2015)*

Drug-Economy Induced Inconsistencies in GDP Measurement:

Inconsistency between official and actual GDP can be realized by summing up licit and illicit/drug GDP. (Figure 1) shows that in 2011 the official reported GDP was estimated to US\$ 16.34 billion and illicit/drug GDP was estimated to US\$ 2.4 billion UNODC & MCN (2011- 2015). The macroeconomic impact of the drug sector is estimated to US\$2.4 billion on officially reported GDP statistics. Thus, the actual GDP, including drug income is obtained amounted to US\$18.74 billion in 2011.

Figure 1: Drug economy induces inconsistencies in official GDP, 2011-2015 (US\$ billion)



Source:

Processing of author on data series provided by UNODC (2011-2015)

Step Two:

Drug economy induces inconsistencies in trade balance over the period, 2011-2015

⁵ Net export value of opium and heroin

⁶ In 2012, US\$ 1.9 billion, in 2013 US\$ 2.99 billion UNODC (2013, p. 12), in 2014 US\$ 2.68 billion and in 2015 US\$ 1.49 billion (UNODC, 2015, p. 15).

Afghani Official trade balance deficit over the period 2011-2015:

According to IMF (2014, p. 44), Afghan economy still runs in huge trade balance deficit, the size of officially reported trade balance deficit is estimated in the following table over the period 2011- 2015 (Table 5).

Table 5: Net official trade balance, 2011-2015 (US\$ million)

Year	2011	2012	2013	2014	2015
Trade Balance	-7,535	- 9,499	-8,450	-7,928	-8,429

Source: Processing of author on data series provided by IMF (2014, p. 44) and IMF (2016, p. 27)

Afghan illicit (drug) trade export values:

Only opium and heroin are included, all other smuggling and informal related export values are excluded, such as the size of Afghan smuggled timber and precious stones. According to IMF (2014, p. 44), net export value of opium and heroin is shown over the period 2011-2015 (Table 6).

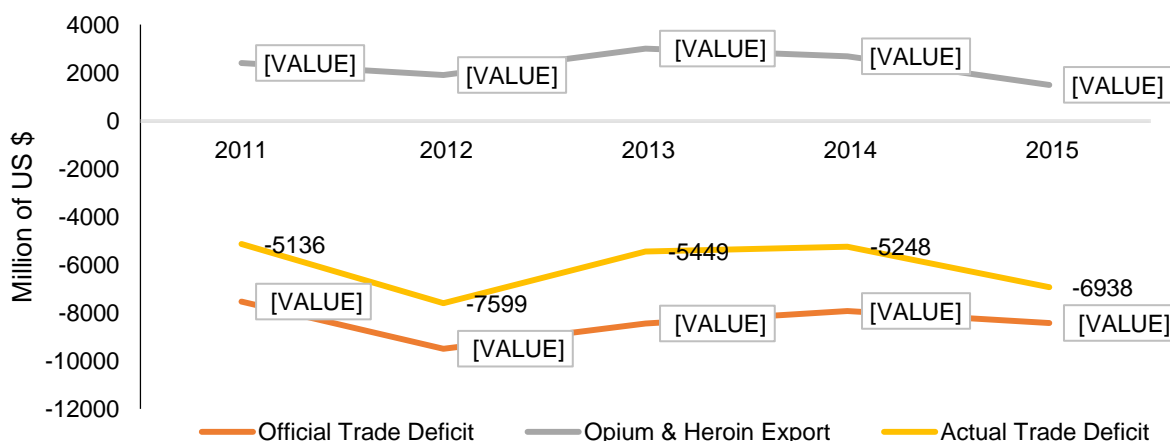
Table 6: Afghan Drug (opium &heroin) export values, 2011-2015 (US\$ million)

Year	2011	2012	2013	2014	2015
Exports Amount	2400	1900	3000 rounded	2680	1490

Source: Processing of author on data series provided by IMF (2014, p. 44) and IMF (2016, p. 27)

Thus, Afghan drug exports values positively impacts official trade deficit in a way that difference between the officially reported trade deficit and deficit after deducting drug export value would be the macroeconomic impact of drug on official trade deficit. This dissimilarity can be seen in (Figure 2). For instance: In 2011, official trade deficit was an estimated US\$-7536 million but owing to drug export this is not the actual deficit. In order to realize the actual trade deficit (licit export + Illicit export – licit imports), generated net income of the drug (opium and heroin) amounted to US\$ 2400 million is deducted from official trade deficit amounting to US\$ -7536 million. Thus, the actual trade deficit was US\$ -5136 million in 2011.

Figure 2: Afghan officially reported trade deficit and actual trade deficit, 2011-2015 (US\$ million)



Source: Processing of author on data series provided by IMF (2014, p. 44) and IMF (2016, p. 27)

Step Three:

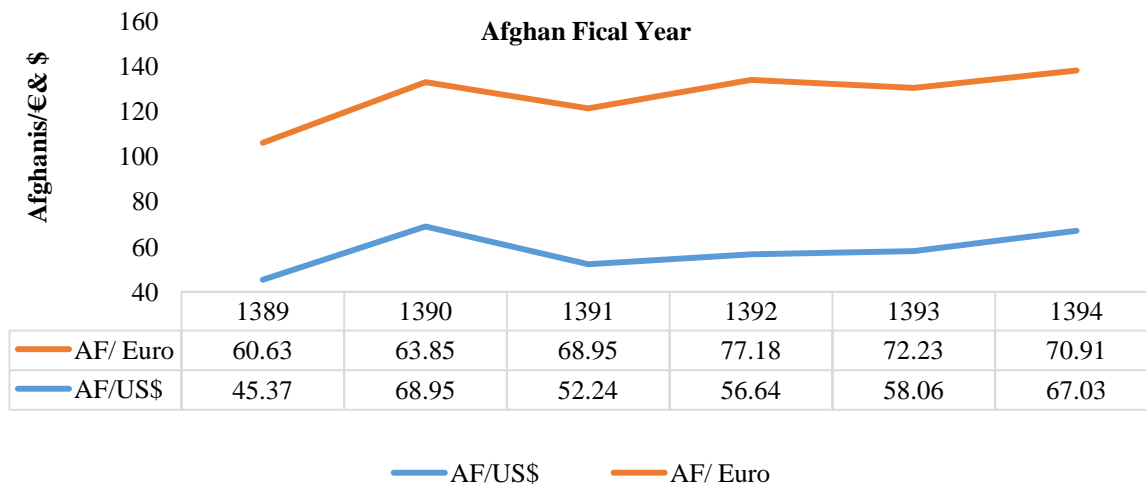
Afghan drug economy induces inconsistencies in (AFN/\$) and (AFN/Euro) exchange rate:

- Afghan GDP in 2013 was reported US\$21.04 billion.
- Drug GDP in 2013 was reported US\$2.99 billion.
- Official trade deficit in 2013 was reported US\$-8450 million.

Afghani exchange rate against US\$ and Euro looks almost stable from 2011 to 2015, see (Figure 3). In 2011, Afghani exchange rate= \$1/AFN 52.16 and at the end of fiscal year \$1/AFN56.64, hence it looks stable over the period 2011-2015 (Da Afghanistan Bank, 2016).

Thus, large current account deficit puts downward pressure on the Afghani exchange rate because current account deficit leads the country to supply domestic currency and buy foreign currencies, in order to offset the trade deficit gap. Supplying domestic currency gradually depreciate even collapses Afghani. However, this is the drug money that attracts billions of foreign currency into Afghan currency market, that can indirectly keep the AFN/\$ exchange rate almost stable, as illustrated in (Figure 3). Thus, Afghani exchange rate against US\$ and Euro over the period of 2010 - 2015 (equivalent to Afghan fiscal year 1389 – 1394) looks stable because of the huge drug sector inflows.

Figure 3: Daily average exchange-rate of Afghani / \$ & € for the Afghan fiscal year (1389-94)⁷



Source: Da Afghanistan central bank (2010-2015): <http://dab.gov.af/en/DAB/currency>

Discussion & Conclusion

Afghanistan is still suffering from huge unobserved economy, most of its economic activities take place illegally and informally, particularly in the huge illegal drug sector. The financial rewards and outputs of illegal and informal economic performances leak from official estimation of national economic performance. This study descriptively proved that, owing to the informal, shadow and

⁷ Afghan fiscal year from 1389 to 1394 is equivalent with, from 2010 to 2015.

illegal economic activities specially a terrific large drug sector, Afghanistan's officially reported GDP and BoP statistics do not signify the actual size of Afghanistan's economic performance over the period of 2011 - 2015.

In 2011, the officially reported GDP was an estimated US\$ 16.34 billion and drug income in the same year was estimated to US\$ 2.4 billion. Hence, US\$ 2.4 billion is a large amount, which disappeared from official GDP statistics. Licit GDP (US\$16.34 billion) and illicit GDP (US\$2.4 billion) is summated in a unique report. Thus Afghanistan's actual GDP for 2011 would be US\$ 18.74 billion, followed by US\$ billions leaked from official GDP reports over the period 2011-2015.

In addition, it is shown that Afghan BoP report is biased by unrecorded and illegal transactions of the country's drug economy over the period 2011-2015. For example, in 2011 Officially reported trade deficit was US\$ -7536 million in official reports. However, after deducting net drug export value of the same year amounting to US\$2400 million, the actual trade deficit reached to US\$ -5136 million. Thus, it seems that impact of drug sector was US\$ 2400 million on Afghan BoP statistics in 2011.

Furthermore, the study proved that Afghanistan's trade balance deficit makes the central bank of the country to supply domestic currency in order to buy foreign currencies and offset trade deficit. This policy usually puts downward pressure on Afghani exchange rate against other currencies and leads Afghani to depreciate or even collapse. But it did not happen to Afghan currency in this research period. Afghani is neither depreciated nor collapsed. Because this is drug sector that attracts as well as injects US\$ billions each year into Afghan currency market. Attraction and injection of foreign currency into domestic market indirectly support domestic currency and keep Afghani exchange rate stable and do not let the Afghani to be depreciated or collapsed but made it stable over the period 2011-2015.

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