

Impact Channels of Currency Regulation on Economic Growth: the Case of Armenia

E.M. Sandoyan* • M.A. Voskanyan** • A.H. Galstyan***

Abstract The most important result of macroeconomic regulation is to achieve long-term sustainable economic growth. However, often emerging markets prefer short-term objectives at the expense of long-term results, which in the long term, usually, affects the level and quality of life in a country. At the same time, the mechanisms of macroeconomic regulation imply a long-term strategy for economic development, including in the area of monetary policy. Currency regulation in this aspect also plays an important role in ensuring sustainable rates of economic growth. The case of Armenia in terms of the impact of currency policy on economic growth is of particular interest. This article is devoted to the analysis and assessment of the impact channels of currency regulation on the economic growth rates in Armenia over the past decades.

Keywords: currency policy; exchange rate; economic growth; models of the relationship between currency policy and economic growth

JEL: E52; E58; G01

Statement of the Problem

The key hypothesis of this research is the thesis that the currency policy implemented in Armenia has led to significant negative consequences in the potential for economic growth.

Having a goal of ensuring economic stability in the country, the Central Bank of Armenia has used and continues to use sufficiently tough tools to maintain the level of the national currency exchange rate (dram), especially over the past twenty years.

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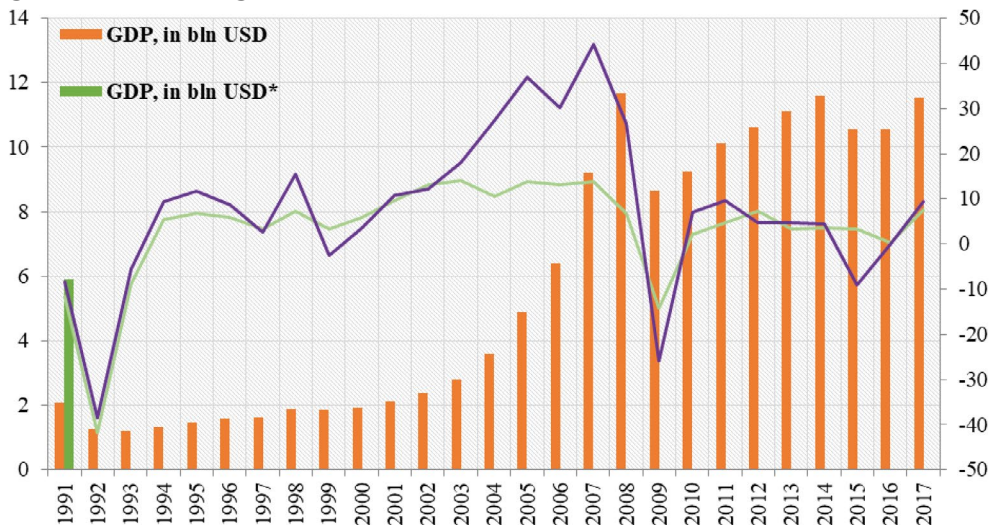
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However, the consequence of this policy was the reduction, primarily, of the potential for expanding exports from Armenia, including to the EAEU countries, where, it would seem, in the context of deepening Eurasian economic integration, new significant opportunities emerged that are still not possible to realize. The main reason for limiting opportunities for expanding Armenian exports in the markets of the EAEU countries and, above all, the Russian Federation, in our opinion, is the lack of harmonization of approaches to currency regulation applied by the central banks of Russia and Armenia. In this regard, the task of this study was to identify the key impact channels of the currency policy on the economic growth in Armenia, in order to identify the main factors of currency regulation that are negative for the country's economic development.

The impact channels of currency regulation on the economic growth in Armenia

Considering the rates of economic growth in Armenia, we can observe three key stages, two of which are characterized by recession and only the period from 2001 to 2008 is distinguished by rather high rates of economic growth (see Fig. 1). However, the crisis of 2007-2008 significantly slowed the rates of economic growth in Armenia, primarily due to the dominance of external factors in the formation of the country's gross domestic product. As shows the Figure 1, as of 2017, the volumes of the gross domestic product have not yet reached the level of 2008. Thus, it becomes obvious that the high rates of economic growth during the previous period were not accompanied by institutional and structural changes in the economy and thus did not have a qualitative nature, which in turn did not create a reserve base for further maintaining rates of economic growth.

Figure 1. Economic growth in Armenia



Source: The database of the Central Bank of Armenia - <http://www.cba.am/>

Note: GDP, in bln USD by authors calculations.

On the other hand, growth during this period can be considered restorative, since after the collapse of the USSR, Armenia, like all other republics of the Soviet Union, experienced a collapse of the economy and a significant drop in economic growth rates. According to the National Statistical Service, the fall in economic growth in 1992 was -41.8%. However, our calculations point to other numbers (see table 1).

Firstly, growth, in this case, refers to changes in GDP in AMD. The figure also shows the growth rate of GDP in USD. As we can see, as a result of exchange rate volatility, as well as the policy of maintaining the dram exchange rate, the growth rates of GDP in dram terms and in dollar terms does not match. Moreover, a drop in the growth rate in 2009 in dollar terms is -25.4% against a fall in GDP of -14.1% in dram terms.

On the other hand, the calculations of the GDP itself raise some doubts. Thus, the national statistics of the USSR calculated GNI as an indicator of the volume of the economy. However, given the fact that the country's economy was closed, we can equate GNI 1991 to GDP in the modern sense. Since at the time of 1991 the exchange rate of the ruble was 58 pennies per dollar, simple arithmetic allows calculating the volumes of GNI (GDP) of Armenia and Russia in dollar terms. Thus, in 1991, Armenia's GDP amounted to 9.31 billion USD, and Russia's to 815.02 billion USD. Comparing the data with the database of the World Bank, we find significant discrepancies.

However, given that at the time of 1991, the economy of the Republic of Armenia was 1.14% of the volume of the Russian economy, we can calculate the value of GDP for this period. Our calculations indicate that Armenia's GDP for 1991 was almost three times more than it is indicated in the database of the World Bank.

Table 1. Methodology of GDP calculation for Armenia in 1991

1991	GNI* (bln rub)	RUB/ USD****	GNI (GDP) (bln \$)	GDP** (bln \$)	GNI (RA) /GNI (RF)	GDP*** (bln \$)
Armenia	16	0.58	9.31	2.07	1.14%	5.92
Russia	1400	0.58	815.02	517.96	100%	517.96

Note:

* Goskomstat USSR, National Statistical Service of RA - http://armstat.am/file/article/national_accounts_1997.pdf

** World Bank database- <http://databank.worldbank.org>, National Statistical Service of RA – www.armstat.am

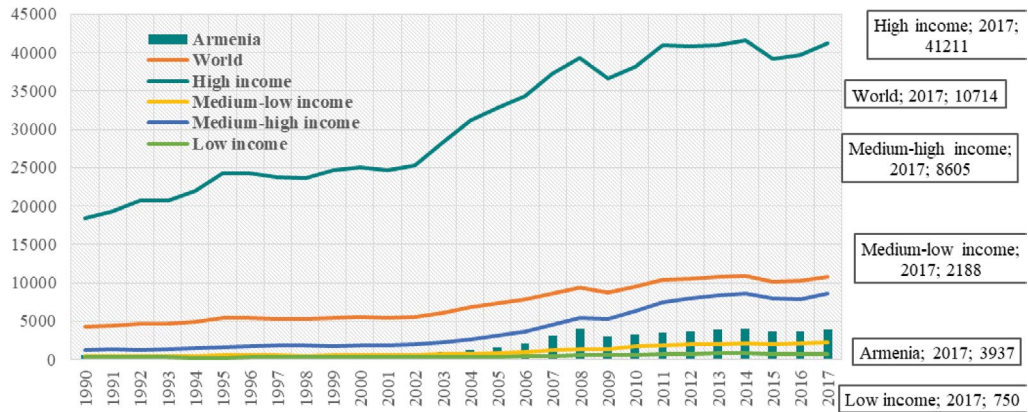
*** GDP RA - 1.14% of GDP RF

**** Database of the Bank of Russia - http://www.cbr.ru/currency_base/OldVal/

It should be noted that in recent years, the World Bank has repeatedly revised indicators based on the clarifications from national statistical services. However, the real numbers in our opinion, illustrate a completely different reality. Taking into

account our calculations, we can say that the fall in the GDP growth rate was -78.5%, almost two times more than is presented in modern statistics. Thus, up to 2006, the economic growth in Armenia can be considered restorative.

Figure 2. GDP per capita, USD, in Armenia and in the world.



Source: World Bank Database - <http://databank.worldbank.org>

Such a state of affairs could not but be reflected in the level of welfare in the country. In terms of GDP per capita, Armenia is currently far behind the group of countries with medium-high incomes (see Fig. 2). At the same time, over the past ten years, there has been no significant increase in terms of this indicator in the country.

Thus, the macroeconomic regulation of the last decade has not led to significant results in terms of changes in the level and quality of life in the country.

Considering the importance of currency regulation in transition economies, this research focuses on the extent and channels of the impact of currency policy on economic growth rates in Armenia.

Figure 3. Dynamics of the USD / AMD exchange rate in Armenia, 1999-2017, monthly*.



Source: The database of the Central Bank of Armenia - <http://www.cba.am/>

* I, V and IX months are highlighted on the figure.

We can see the main results of the currency policy in Armenia in Figure 3. Almost the entire considered period is characterized by the stability of the volatility of the dram's exchange rate against the dollar, with the exception of the period 2003-2008, the dram is significantly strengthened.

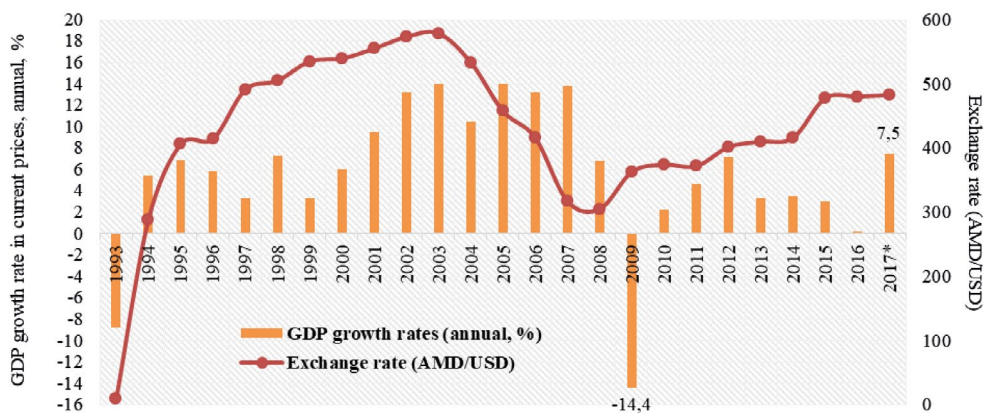
The period of strengthening is most interesting since it had to be accompanied, or to be more precise, be based on the noticeable structural and qualitative changes in the economy and in the formation of economic growth, which, as stated above, is not observed in the Armenian economy.

Considering economic growth rates in Armenia from the point of view of periods of strengthening or depreciation of the dram's exchange rate against the US dollar, rather ambiguous conclusions are observed (see Fig. 4).

So, if during the period of the depreciation of the dram, we observe a fairly steady rate of economic growth in 2000–2003, then the next five years, the depreciation of the dram is also accompanied by double-digit economic growth. Then, the period of dram depreciation alternated by stable exchange rate dynamics (2009-2017) is characterized by recession and very low rates of economic growth.

All this together confirms the thesis about the artificial nature of the dram's exchange rate formation, which was proved in our previous studies¹.

Figure 4. Rates of economic growth and exchange rate AMD/USD, 1993-2017.



Source: The database of the Central Bank of Armenia - <http://www.cba.am>

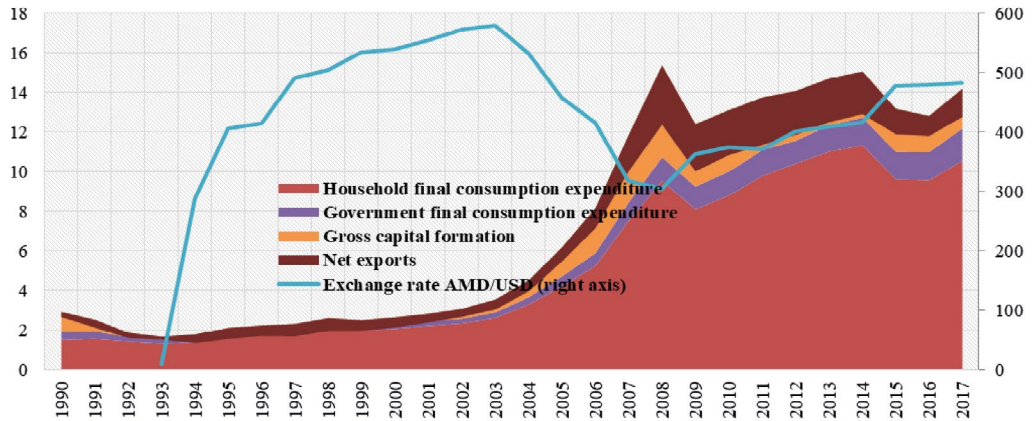
*Note: data for the first three quarters.

In this regard, in order to assess the key impact channels of currency regulation on economic growth rates in Armenia, we considered the structure of GDP calculated by

¹ See more: Sandoyan E., Voskanyan M., Galstyan A. Assessment of key factors of the foreign exchange rate formation in Armenia. Finance: Theory and Practice. T.22, №5'2018 Pp. 27-39; Валютное регулирование в Республике Армения: проблемы и перспективы развития. По материалам семинара на тему «Политика валютного регулирования в РА: проблемы и перспективы развития»: Российско-Армянский университет (19 октября 2016г.)/ Под редакцией Э.М. Сандояна, М.А. Восканян. – Ер.: Изд-во РАУ, 2017. – 44с.

expenditure approach in terms of the impact of the dram's exchange rate on each of the components included in the gross domestic product.

Figure 5. GDP of Armenia (expenditure approach), bln USD, and exchange rate AMD/USD.



Source: World Bank Database - <http://databank.worldbank.org>

The basis of the structure of GDP by expenditure approach is primarily consumer spending. The last ten years have significantly increased government spending, which today occupies second place in the structure of GDP. At the same time, net exports are characterized by a constant negative value, and gross capital formation constitutes a very small share in Armenia's GDP.

Model of the relationship between currency policy and economic growth. The case of Armenia.

Methodology

In the framework of this research, the sample period runs from 2001Q1 to 2017Q4. In order to build a simulation model, the authors took into account the analysis conducted in the previous section as well as in their previous working paper.

All variables were tested and cleared of seasonality. In order to check the stationarity of the variables, the authors have used the augmented Dickey-Fuller test [1], which tests the variables for the presence of unit root. The auxiliary regression for the unit root test is given as follows:

$$\Delta y_t = z_t' \delta + \rho y_{t-1} + \sum_{i=1}^p \beta_i \Delta y_{t-1} + v_t$$

where z_t are optional exogenous variables that may consist of a constant, or a constant and a time trends; $\delta, \rho, \beta_i (i = 1, 2, \dots, p)$ are unknown parameters to be estimated; v_t is the white noise.

The null and alternative hypotheses are as follows: $H_0: \rho = 0$, $H_1: \rho < 0$.

After testing the variables in levels, it became clear that they are not stationary. In order to make them stationary, the authors have used the first difference method. Table 2 represents the transformation of the time series.

Table 2. The list of used variables

	Transformation	Seasonal adjustment
Exchange rate AMD/USD	$\Delta \ln$	Yes
Export	$\Delta \ln$	Yes
Import	$\Delta \ln$	Yes
Inflow of remittances	$\Delta \ln$	Yes
Private consumption	$\Delta \ln$	Yes

After the transformation, all the variables were double checked for the presence of unit root, and it was made sure that they became stationary.

We have considered the impact of the Armenian dram's exchange rate on the GDP through private consumption (C), export (Ex) and import (Im). Table 3 presents the equations, which were used for the scenarios.

The equations were composed, by using the variables, described in table 1 and the parameters were estimated by the method of least squares in the ARMA model. The calculations were made in the econometric program package EViews 10.

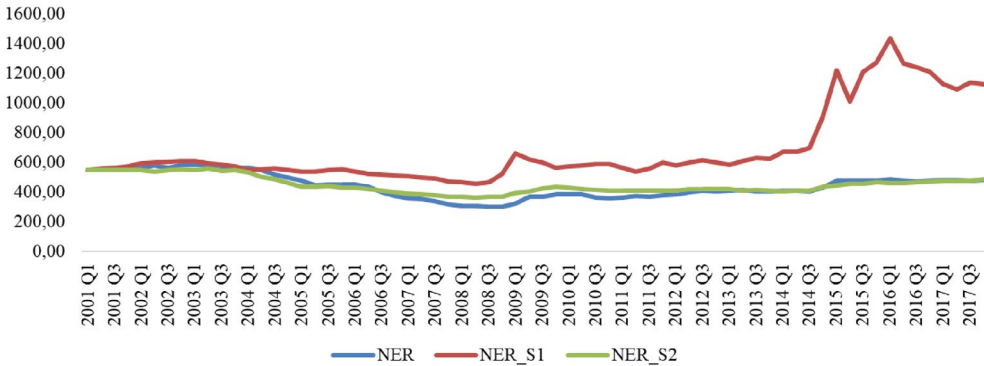
Table 3. Estimated regressions and equations.

Factor	Equation
Private Consumption	$C = 0.075T + 0.15Im + 0.015$
Import	$Im (USD) = - 0.91NER + 0.03$ $Im (AMD) = Im (USD) * NER$
Export	$Ex (AMD) = EX (USD) * NER$

Were built two possible scenarios, based on two scenarios of the exchange rate dynamics. The first scenario was built assuming that the Armenian dram's exchange rate was moving with the exchange rate of the Russian ruble. For the second scenario were used the results of the authors' previous article, where they have estimated the factors of the exchange rate formation of Armenian dram by building a VAR model.

The estimation results suggested that a floating exchange rate is better for absorption of the external shocks in Armenia and may prevent exchange rate overshooting, hence currency crisis. Figure 6 presents the actual values of the exchange rate of Armenia (NER), the exchange rates used for the first and second scenarios.

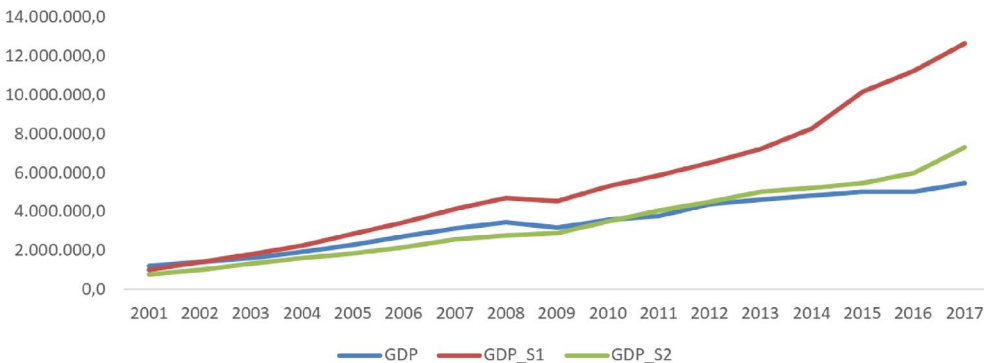
Figure 6. Actual and estimated values of the nominal exchange rate of the Armenian dram



Source: Calculations of the authors.

The estimated GDP for both scenarios were calculated by the known equation ($GDP=C+I+G+X_n$), where I and G were considered to be unchanged. Figure 7 shows the estimated GDP for the first (GDP_S1) and the second (GDP_S2) scenarios.

Figure 7. Actual and estimated values of the GDP of Armenia (mln. AMD)



Source: Calculations of the authors.

As it is evident from the figure 7, the policy of floating exchange rates and non-interference from the Central Bank, moreover an exchange rate policy harmonized with the policy of Russian Federation, could have considerably boosted the economic growth of Armenia.

Conclusions

The key findings of the econometric study are the following:

- 1) The study did not reveal a direct impact of the dram’s exchange rate on the economic growth of Armenia. However, an impact is observed through key

- components in the GDP structure.
- 2) Considering the structure of GDP by expenditure approach, we can say that consumer spending has the greatest impact on economic growth, and then net exports. At the same time, currency regulation affects consumer spending through the channel of private foreign money transfers. Government spending and gross capital formation are not affected by the volatility of the dram's exchange rate.
 - 3) The impact on exports is ambiguous. The dubious results are primarily due to the structure of Armenia's exports, which in various periods underwent changes unrelated to market factors. The next stage of our research will be the analysis and assessment of the impact factors of currency regulation on the export positions of Armenia.
 - 4) Harmonization of currency regulation in Armenia with the policy of the Bank of Russia will lead to positive effects in terms of economic growth.

In conclusion, we want to mention that, as has been repeatedly proved in our researches, the currency regulation of the last ten years has led to a significant reduction in export potential, and, consequently, to a slowdown in economic growth. Timely harmonization of the currency policy with the policy of the Central Bank of Russia would have strengthened the benefits of Armenia's entry into the EAEU, and increased export positions in the domestic market of the customs union. Thus, today, a significant revision of the approaches to currency regulation in Armenia is needed, with the aim, above all, of stimulating sustainable economic growth rates in the long term.

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