Maja Bacovic, Ph.D.
University of Montenegro, Faculty of Economics
Podgorica, Montenegro
majab@t-com.me

DEMAND DRIVEN GROWTH IN SMALL OPEN, IMPORT DEPENDABLE ECONOMY

JEL classification: E2

Abstract
Demand driven growth is rather common approach in many countries in short run. Growth in aggregate demand pushes production to higher level, increasing employment and income. But what is the case in small open economies which are highly import dependable, service oriented and have to import most consumers' goods? We will analyze this issue in case of Montenegro. Economy of Montenegro is small, open and services oriented. National savings is moderate, while import dependency is very high. Agriculture and manufacturing make less than 20% of GDP, which influence high import of both nondurable and durable goods. Financial markets are open and significantly relay on imported capital. Since independence (2006), Montenegro attracted significant amount of foreign investments and financial inflows, transferred through commercial banks into household consumption. Great increase in loans influences high aggregate demand, which contributed significantly to import growth, but compensated with higher financial surplus. GDP growth was achieved through growth in construction, trade and tourism sector. Since global financial crisis, financial inflows dropped, leaving Montenegrin economy to struggle with increased debt (both public and private), unfinished investment project to provide value added and low level of domestic production leading to high trade deficit. Investments failed to increase domestic manufacturing production and at least partially substitute increased import or reduce trade deficit with increased export. Now, Montenegrin economy needs new investments to increase production, but due to low national savings, capital has to be provided from international market, where interest rates are rather high. Future growth can be achieved only if it is driven by investments, as growth in aggregate demand will more likely lead to higher trade deficit than production growth.
Key words: demand driven growth, investments driven growth, import dependency

1. INTRODUCTION

Among many discussions in macroeconomics, there is one majorly accepted consensus: in long run, country's income (Gross domestic products) depends on the factors of production (capital, labor and technology). GDP grows when the factors of production increase or when technology improves resulting in higher productivity. As Mankiw (2009) said, this is important issue policy makers should incorporate into their policies. Any policy resulting in increase of national saving, efficiency of labor and improvement of national institutions, will lead to higher GDP in long run with greater probability.

In short run, GDP depends on aggregate demand for goods and services (household consumption, government consumption, investment and trade balance-export minus import) due to nominal price stickiness that enables value to differ for significant period of times. Any increase in any particular component of aggregate demand will lead to GDP growth in short run). Policy makers, ever since J.M.Keynes introduced such idea, see government expenditures as good tool to stabilize economy and provide positive growth rates. Increase in government expenditures may encourage investment (trough public investment) and/or personal consumption (trough higher transfers or wages) and push production to the higher level. Whether it is good approach or not, is not aimed to discus in this paper. What could be a problem is failure of growing demand to increase domestic production and employment and provide stable path for future growth.

As Becker et al., 2010[1], stated, over the last two decades most central and south-eastern European countries have experimented with unique growth model, combining institutional anchoring to the EU, integration of product markets trough trade in goods and services, encouraged capital market mobility and eventually labor mobility. In their study, they concluded that, while most countries followed similar growth model, results were quite different, with imbalances, especially external deficit and the credit boom, much more serious in Balkan and Baltic countries than in central Europe.

In their analysis on prospects for Development in South-East Europe[2], Astrov and Gligorov emphasized that current accounts are almost invariably and persistently in red, which makes financial inflows necessary.

In more recent study by Astrov, Gligorov et al., (2010)[3], stated that growth model in SEE should be redirected, in terms that changed external conditions after crisis and internal behavior responses to the crisis (more difficult financing conditions, increasing savings rates of household sector, constraint in fiscal spending) will shape the growth paths.

2. ECONOMIC PERFORMANCE IN MONTENEGRO SINCE INDEPENDENCE

Montenegro has gained independence in 2006, and since has started creating economic environments favorable for investment. It is small, open economy, with stable monetary system dye to eurization (introduced DM as sole official currency since 2000, following with EURO).

[1] Becker, T., Daianu, D., Darvas, Z., et al, (2010): Whither growth in central and eastern Europe? Policy leasons for an integrated Europe, WIIW and Bruegel Blueprint 11

[2] Astrov, V., Gligorov, V.: Prospects for Development in South-East Europe, wiiw Research paper No.276, April 2001.

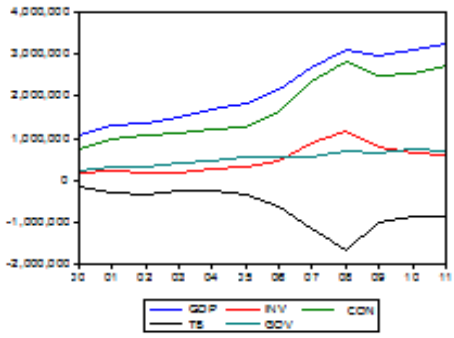
[3] Astrov, V., Gligorov, V., Havlik, P., et al, (2010): Crisis is over, but problems loom ahead, wiiw Current Analysis and Forecasts No.5, February 2010

Economy has been service oriented for last decades, with manufacturing and agriculture making in average 20% of GDP. The most significant service sectors are trade, transportation and tourism.

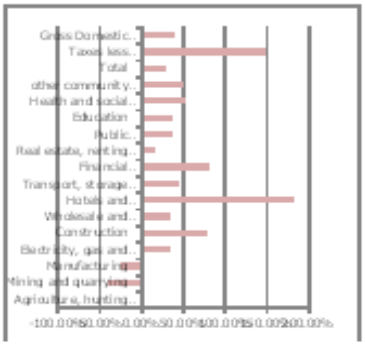
Since 2006, strategic vision of Montenegrin development has been to, trough investment growth, provide output growth and stable positive growth rates. Due to low national savings, foreign capital has been seen as key financial source to finance investment. Foreign direct investments were important not only because they will provide necessary capital, but new technologies, knowhow and management systems. Therefore, financial market has been open since, for any type of financial flows, including borrowing to finance all types of spending (consumption or investment).

Since 2006, most variables had started growing rather fast: GDP, Investment and personal consumption. In 2009, growth was interrupted due to negative effects from international markets, but has started again in 2010, although modestly.

Graph 1. Trends in GDP and aggregate demand components in Montenegro (2000-2011)



Graph 2. Real growth by economic activities, 2011/2000



Source: Based on data from Monstat (Statistical Agency of Montenegro), www.monstat.org

But the biggest issue is that growth rates are dominantly driven by household and government consumption, while investment failed to increase material production significantly which resulted in high trade deficit.

In production, progress was seen in electricity generation and in service area in hotels and restaurants, while all other generators of growth where services as trade and transportation.

As shown in graph 2, analyzing real output growth by economic activities, three of them declined in twelve year period: manufacturing, mining and agriculture. Those three are the most important sectors in terms of domestic production of goods. What influenced overall real GDP growth in Montenegro was real growth in tourism (hotels and restaurants), trade, financial intermediation and transport. Construction was also important component.

2.1. Data

Analyzing economic performance in Montenegro is limited with short existence of data time series (data used in this paper are presented in annex), as it is young country (independent since 2006), with statistics produced in accordance with National Accounts system 2003 standards since 2000. Also, additional obstacle is that most time series were produced on yearly basis, which limits number of observation.

Despite all obstacles, we proceeded with analysis using available data from official sources, knowing that results will be of limited use, especially for reliable forecast. Results we provided may be use as good approximation of relations and dependencies in economy, but should be treated as work in progress, aiming to provide better conclusion once inputs are improved.

For the purpose of analysis presented below, following data were used: Gross Domestic Product in current prices, Personal Consumption, Government consumption, Gross and Net Investment, Trade balance, Total exports of goods, Total import of goods and Loans to households. Disposable income was estimated using following definition:

$$Y_{disp} = GDP - T + T_r + NFI + NT$$

Where: Y_{dsip}-disposable income; GDP – Gross domestic product in current prices, T-tax revenues, T_r-transfers to households, NFI – Net factor income, NT – net transfers from abroad.

2.2. Aggregate demand in Montenegro

Analysis of trends in components of demand in Montenegro has shown consistent growth (excluding 2009, when due to global crisis, all components were declining).

Comparing trends in each individual component and total GDP, we observed high correlation, but the highest in relation to household consumption and GDP.

Table 1: Correlation between BDP and various components (2000-2011)

	GDP	GOV	INV	HOUS	Trade Bal.
GDP	1.000000	0.955884	0.867430	0.991619	-0.859827
GOV	0.955884	1.000000	0.780955	0.921240	-0.770110
INV	0.867430	0.780955	1.000000	0.907988	-0.990327
HOUS	0.991619	0.921240	0.907988	1.000000	-0.908378
Trade bal.	-0.859827	-0.770110	-0.990327	-0.908378	1.000000

What is, in our opinion, the most important element to notice is very high negative correlation coefficient between GDP and international trade balance. This leads to conclusion that economy is extremely import dependant and that the most of multiplication effects were transferred abroad. That is why we consider important to estimate several functions in order to analyze growth potential under currents trends and structure in the economy.

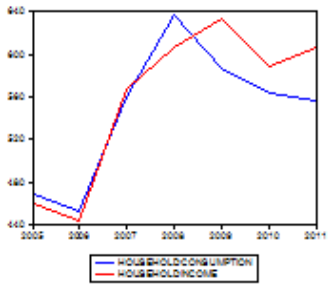
In order to analyze impact from demand components to GDP, in first iteration we estimated three demand component functions: Consumption function, Tax function and Import function.

2.3. Consumption function

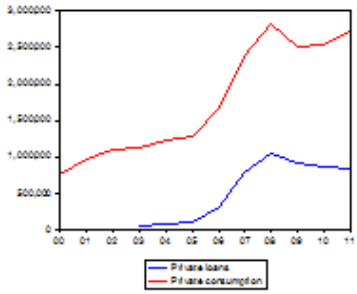
Household consumption in Montenegro has grown almost constantly (except in 2009), following very similar trend to GDP.

What is very important is the fact that, until 2009, consumption exceeded disposable income, leading to negative savings. This was influenced by increased supply of loans offered by commercial banks and other financial institutions, wi1th favorable interest rates. General optimism and affordable sources to finance lead to growth in expenditures, but in personal debt as well, which influenced drop in consumption in 2009.

Graph 3. Household consumption in Montenegro



Graph 4: Private loans in Montenegro



Source: Based on data from Monstat (Statistical Agency of Montenegro), www.monstat.org

Consumption function was defined as dependable on disposable income (table 2.):

$$C = c_6 + c_7 Y_{disp}, \qquad (1)$$

Where C – consumption, c_6-authonomyus consumption, c_7 – marginal propensity to consume.

Table 2: Estimated Consumption function for Montenegro

Dependent Variable: C
Method: Least Squares
Sample: 2005 2011
Included observations: 7

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C_6	274361.3	395663.0	0.693422	0.5189
Y_{disp}	0.829064	0.159496	5.198035	0.0035

R-squared	0.843846	Mean dependent var	2270795.
Adjusted R-squared	0.812615	S.D. dependent var	580987.2
S.E. of regression	251497.9	Akaike info criterion	27.94321

Sum squared resid	3.16E+11	Schwarz criterion	27.92776
Log likelihood	-95.80125	Hannan-Quinn criter.	27.75220
F-statistic	27.01957	Durbin-Watson stat	1.018929
Prob(F-statistic)	0.003473		

Although, as we mention previously, some results are not fully statistically significant, presented results may be used to get clearer picture on economic structure and in later steps give approximation of some indicators relevant for analysis. In this case, we will use marginal propensity to consume, as input to estimate effects of investment in small open import dependable economy.

2.4. Tax function

Tax function (table 3.), was estimated using similar approach as in case on personal consumption.

Function was defines as:

$T = T_a + tY$ (2)

Where T – total taxes, T_a – Autonomous taxes, t – marginal tax rate, Y - GDP

Table 3: Estimated tax function for Montenegro

Dependent Variable: T
Method: Least Squares
Date: 05/16/13 Time: 12:35
Sample: 2005 2011
Included observations: 7

Variable	Coefficient	Std. Error	t-Statistic	Prob.
T_a	466795.5	112265.8	4.157951	0.0088
Y	0.085130	0.040572	2.098251	0.0900

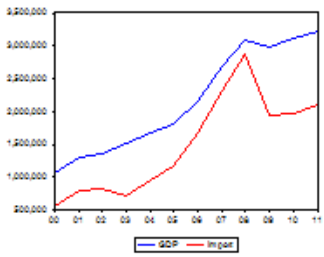
R-squared	0.468235	Mean dependent var	698457.3
Adjusted R-squared	0.361882	S.D. dependent var	67380.09
S.E. of regression	53824.74	Akaike info criterion	24.85981
Sum squared resid	1.45E+10	Schwarz criterion	24.84436
Log likelihood	-85.00934	Hannan-Quinn criter.	24.66880
F-statistic	4.402656	Durbin-Watson stat	1.486141
Prob(F-statistic)	0.089953		

Marginal tax rate is moderately low, which is result of intentions to provide favorable tax system in Montenegro in order to attract investment and accelerate production and income growth.

2.5. Import function

Import is one more variable highly correlated with income and consumption, due to low level of production of goods in Montenegro, both, for final and intermediary consumption.

Graph 5. Import and GDP



Source: Based on data from Monstat (Statistical Agency of Montenegro), www.monstat.org

Based on the same set of data as for consumption, we estimated import function:

$$M = M_a + mY \qquad (3)$$

With M – total import, Ma – autonomous import, Y – GDP.

Table 4: Estimated Import function for Montenegro

Dependent Variable: Import
Method: Least Squares
Sample: 2005 2011
Included observations: 7

Variable	Coefficient	Std. Error	t-Statistic	Prob.
M_a	44712.39	815117.8	0.054854	0.9584
GDP	0.720766	0.294576	2.446796	0.0582

R-squared	0.544909	Mean dependent var	2006120.
Adjusted R-squared	0.453891	S.D. dependent var	528828.9
S.E. of regression	390800.4	Akaike info criterion	28.82474
Sum squared resid	7.64E+11	Schwarz criterion	28.80928
Log likelihood	-98.88658	Hannan-Quinn criter.	28.63373
F-statistic	5.986810	Durbin-Watson stat	1.249020
Prob(F-statistic)	0.058165		

Marginal propensity to import of 0.72 is very high but shows strong import dependency of Montenegro. As explained before, due to limited goods production, import of final goods in very high, as shown in graph below.

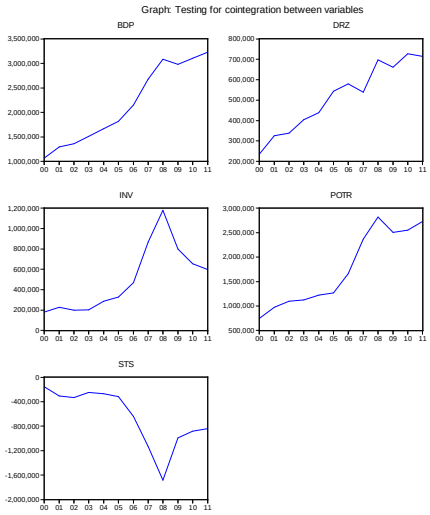
2.6. Model

Final step in our analysis in to estimate model reflecting equilibrium in the market for goods and services in open economy, as follows:

$$GDP = c + C + I + G + E - M \qquad (6)$$

$$C = c_6 + c_7 Y_{disp}, \qquad (1)$$

Prior to estimating the model, we verified whether time series are stationary or not, and due to short time serious, individual statistics are not stationary, which means that estimated parameters are biased. But, we analyzed combined trend for each individual variable, and saw very similar path (as shown in graph below. We also tested cointegration by using Johansen cointegration test and received positive results. This means that estimated model can be used as good approximation, but not as fully reliable source for decision making or forecast.



Source: Based on data from Monstat (Statistical Agency of Montenegro), www.monstat.org

Giving to import the status of exogenous variable is not quite good approach, but provided better statistical results.

Table 5: Equilibrium in the markets for goods and services model for Montenegro

Estimation Method: Least Squares
Sample: 2005 2011
Included observations: 7
Total system (balanced) observations 14

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	107771.7	107670.0	1.000945	0.3502
C(2)	0.978844	0.043450	22.52823	0.0000
C(3)	0.964337	0.225361	4.279068	0.0037
C(4)	0.395904	0.276902	1.429761	0.1959
C(5)	0.540487	0.184153	2.934997	0.0219
C(6)	274361.3	395663.0	0.693422	0.5104
C(7)	0.829064	0.159496	5.198035	0.0013
Determinant residual covariance		6.67E+18		

Equation: GDP = C(1) + C(2)*C + C(3)*G + C(4)*I + C(5)*STS

Observations: 7			
R-squared	0.999406	Mean dependent var	2721280.
Adjusted R-squared	0.998219	S.D. dependent var	541604.9
S.E. of regression	22858.00	Sum squared resid	1.04E+09
Durbin-Watson stat	2.334389		
Equation: C=C(6)+C(7)*Y_{disp}			
Observations: 7			
R-squared	0.843846	Mean dependent var	2270795.
Adjusted R-squared	0.812615	S.D. dependent var	580987.2
S.E. of regression	251497.9	Sum squared resid	3.16E+11
Durbin-Watson stat	1.018929		

While statistical significance is questionable in case of some estimated parameters (constant particularly), we accepted results as fair approximation economic relations.

As we can see for estimated results, growth in consumption will lead strongly to GDP growth, while effects from investment and trade balance are lower than desired. This is probably due to high import dependency, in which case benefits of investment and/or export will probably go to international economic partners Montenegro imports goods from.

If we apply estimated parameters (marginal propensity to consume, marginal tax rate and marginal propensity to import) to the theoretical foundation of model of equilibrium in the market for goods and services, defined as (Vukotic, 2001):

$$Y = C + G + I + E - M \quad (7)$$
$$C = c_6 + c_7 Y_{disp}, \quad (1)$$
$$T = T_a + tY \quad (2)$$
$$Y_{disp} = Y - T + T_r \quad (8)$$
$$M = M_a + mY \quad (3)$$

Multiplier define impact from one unit change in any exogenous variable (G, I, E), would be:

$$p = \frac{1}{1 - c_7(1-t) + m} = 1.03$$

Such low value is result of high marginal propensity to import, which diminish positive effects of investment and/or export for income growth.

3. IMPLICATION FOR FURTHER ECONOMIC PERSPECTIVES

Analysis of economic behavior on goods and services market in Montenegro has shown several characteristics:

1. Household and government consumption were dominant element of aggregate demand:
2. Investment were growing, although slowly compared to personal and government consumption, but provided real growth dominantly in service sector, which influenced rapid growth of import of goods

If such performance continues in the future, due to exporting multiplying effects abroad, growth will likely to be slower than possible. This is why economy should straightening domestic production of goods, and those who define policies should be aware that with such high import and finance dependency, long term growth rates will be less optimistic and more difficult to be predictable.

In such manner, domestic production, entrepreneurial activities, business climate favorable to investment, should be supported. Growth should be more investment then demand driven.

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STATISTICAL DATA

Table 6: Macroeconomic indicators for Montenegro (in 000 euro)

year	GDP	Gov.cons	Foreign transfers	Gross inv	Private loans	Net investment	Net factor income	Household consumption	Trade balance	Tax revenues
2000	1065699.	233759.0	NA	179821.0	NA	134433.0	NA	745691.0	-152344.0	NA
2001	1295110.	325988.0	NA	226683.0	NA	181483.0	NA	970764.0	-305160.0	NA
2002	1360353.	338195.0	NA	198916.0	NA	134847.0	NA	1100461.	-333520.0	NA
2003	1510128.	404181.0	NA	200830.0	49959.00	158313.0	NA	1120474.	-247297.0	NA
2004	1669783.	439238.0	NA	286072.0	74393.00	224722.0	NA	1221101.	-268260.0	NA
2005	1814994.	543420.0	42000.00	326329.0	104316.0	280278.0	146555.0	1267951.	-318112.0	616593.0
2006	2148998.	580054.0	49880.00	469811.0	311175.0	394585.0	90207.00	1660948.	-638815.0	644298.0
2007	2680467.	539340.0	44750.00	867109.0	794104.0	537926.0	59379.00	2368961.	-1133986.	708020.0
2008	3085621.	698103.0	346540.0	1180216.	1037563.	697279.0	73060.00	2814821.	-1682267.	827970.0
2009	2980967.	661430.0	412470.0	797623.0	919313.0	588617.0	85377.00	2503696.	-992637.0	712440.0
2010	3103855.	727215.0	423150.0	655139.0	863591.0	543886.0	114408.0	2550717.	-881549.0	675800.0
2011	3234060.	714670.0	454760.0	596453.0	833730.0	406558.0	120000.0	2728471.	-840799.0	704080.0

Source: Official statistical agency for Montenegro, Central bank of Montenegro