



Journal of Internet Banking and Commerce

An open access Internet journal (<http://www.icommercecentral.com>)

Journal of Internet Banking and Commerce, April 2016, vol. 21, no. S3

Special Issue: Finance, Services Sector and Commerce: Innovations and Investments

Edited By: Mikhail N. Dudin

Aggregate Demand and Its Pattern in the Contemporary Russian Economy

SVETLANA K. DEMCHENKO

Department of Economics and Planning, Siberian Federal University, L. Prushinskoy str, Krasnoyarsk, 660075, Russian Federation,

Tel: +7(904)891-67-55;

Email: demchenko.svet@mail.ru

JULIA Yu. SUSLOVA

Department of Trade Business and Marketing, Siberian Federal University, L. Prushinskoy str, Krasnoyarsk, 660075, Russian Federation

VLADIMIR V. KAPLUN

Department of Economics and Planning, Siberian Federal University, L. Prushinskoy str, Krasnoyarsk, 660075, Russian Federation

OLGA S. DEMCHENKO

Department of Theoretical Foundations of Economics, Siberian Federal University, L. Prushinskoy str, Krasnoyarsk, 660075, Russian Federation

Abstract

The article presents the results of a correlation analysis of the aggregate demand

pattern in the Russian economy. The analysis findings showed maximal dependence of dynamic pattern of the gross domestic product (GDP) on consumer spending and the dynamics of government expenditure. The authors revealed a segmented reduction in the growth rate of economic indicators, considered factors that influenced the change in the GDP breakdown as well as suggested and proved the development trends of Russian economy based on the data obtained.

Keywords: Aggregate Demand; Gross Domestic Product (GDP) Breakdown; Final Consumption; State Regulation of Investment Activity

© Svetlana K. Demchenko, 2016

INTRODUCTION

It is advisable to produce the assessment of the processes taking place in the macroeconomic environment through the aggregate supply – aggregate demand model (AS-AD model). In terms of defining the economic development vector this method is recognized as valid and theoretically transparent. It should be noted that the construction of the model based on actual data with the further interpretation of the results obtained is not an easy task. At the present stage of the Russian economy development the aggregate demand plays a key role. The dynamics of aggregate demand pattern reflects the processes taking place in the economy and specifies the future economic development course.

Neo-classicists and neo-Keynesians still discuss about the main factor of economic development: from the supply-siders' view point the aggregate supply is a main development factor, while from the viewpoint of the Keynesians this is aggregate demand. The opinion of Russian scientists on this issue is presented in the works of Maltsev [1], Tyukavkin [2], Chinilina [3] and Khaikin [4].

For contemporary Russian economy, the aggregate demand is the main factor of dynamic economic development [5].

Method

The level of GDP calculated by production method is the indicator of aggregate supply. The factors that cause shifts of the aggregate demand curve depend on changes in the money supply in the economy and velocity of money circulation. This can be the expenditures of private consumers such as households, or gross capital formation, i.e. investment expenditures of firms, expenses of state administration bodies, or expenses of foreigners namely net exports.

Aggregate demand is GDP, which is calculated employing final use method based on the Keynes macroeconomic identity. The calculation of demand is performed using the estimations of indicators obtained through regression analysis.

To form data array needed for analysis and aggregate demand model building, it is necessary to have access at least to a deployed statistical reporting [4]. It seems appropriate to resort to the macro-level analysis due to the availability of data in the State Statistical Monitoring of the Russian Federation [6,7].

The peculiarities of the AS-AD model were considered by many Russian economists: Konevchshinskaya [8], Kochkurova [9], Kuz'bozhev [10], Melkumyan [11,12], Sinchuk [13] and other scientists.

To determine what data should be collected for analysis and building the aggregate demand model, it is necessary to introduce a factor model, i.e. to determine the factors that influence the magnitude of aggregate demand in the country. It is advisable to include the following indicators to the factors in the model given by the formula (Table 1):

- Y – Annual level of real GDP;
- C – Level of final personal consumption;
- I – Gross investment;
- G – Level of government spending;
- NX – Net exports;
- T – Level of taxation (total tax revenues);
- R – Real interest rate calculated by Fisher equation accounting to the current inflation rate (consumer price index was used as a measure of inflation, and the average rate on loans was taken as nominal interest rate), %: $\text{Real interest rate} = (\text{Nominal rate} - \text{inflation}) / (1 + \text{inflation})$;
- PP – average price of Urals crude oil in 2014 amounted to 97.60 \$/barrel;
- P – price level (calculated as the consumer price index), where 2005 is taken as the base year).

Table 1: Factors influenced the aggregate demand in the country in 2005-2014 [14].

Year	Y	C	I	G	NX	T	R	PP	P
2005	21609.8	14438.2	4338.7	3645.9	2959.0	2722.691	10.7	50.40	1
2006	26917.2	17809.7	5698.8	4680.4	3425.9	2725.658	10.4	61.10	1.305
2007	33247.5	21968.6	8034.1	5751.0	2866.6	3112.869	10	69.34	1.483
2008	41276.8	27543.5	10526.1	7359.9	3812.6	3189.102	12.2	94.16	1.852
2009	38807.2	29269.6	7344.8	8066.7	2887.7	3268.83	11.8	60.94	1.830
2010	46308.5	32514.6	10472.7	8671.3	3739.7	3350.55	12.6	102.57	1.940
2011	55967.2	37529.4	13982.5	10102.8	4776.5	3434.314	13.7	115.29	2.130
2012	62147.0	42950.3	15458.7	11675.3	4512.1	3520.172	13.5	109.34	2.353
2013	66193.7	47957.4	15131.8	13020.2	3922.3	3608.176	13.75	107.88	3.145
2014	70975.8	52484.5	14847.9	14104.7	4913.7	3698.381	13.2	97.60	3.320

Also for full understanding and a detailed analysis it is worth determining factor E as an independent index. This factor is an index of actual ruble exchange rate to foreign currency related to the previous period (Table 2). The index of actual ruble exchange rate to foreign currency in relation to the previous period is calculated as the ratio of the product of the price index for the current period to the previous period in Russia and the average monthly (quarterly, annual) nominal rate of the ruble against foreign currency in the previous period to the price index in the period to the previous period in the country, where the k-th currency is legal means of payment [15].

Table 2: Index of actual ruble exchange rate to foreign currency to the previous period (2005-2014).

Year	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
E Factor	10.84	10.65	12.78	13.28	-12.17	9.73	8.82	-2.71	2.72	-11.08

Results: Building a correlation matrix that shows the dependence of aggregate demand from individual factors, allows drawing conclusions about changes in the aggregate demand pattern (Table 3).

Table 3: Correlation matrix of economic data in Russia, 2005-2014.

	Y	C	I	G	NX	T	R	PP	P
Y	1								
C	0.994071	1							
I	0.970392	0.939576	1						
G	0.992899	0.999573	0.937973	1					
NX	0.83639	0.796786	0.860641	0.789185	1				
T	0.96126	0.962643	0.926717	0.964227	0.716655	1			
R	0.900734	0.882542	0.907918	0.885489	0.824195	0.863985	1		
PP	0.850064	0.797834	0.929805	0.79481	0.836958	0.820481	0.892588	1	
P	0.976307	0.988013	0.913014	0.987206	0.751446	0.930775	0.830841	0.744484	1

The level of GDP significantly correlates with indicators such as the level of final private consumption, gross investment, government spending, price and taxation levels; less expressed correlation is observed between GDP and the level of net exports. These data are confirmed by Table 4, representing the GDP consumption components.

Table 4: GDP consumption components (2008-2014) in current prices, bln rubles [15].

Indicators	2008	2009	2010	2011	2012	2013	2014
Gross domestic product	41276.8	38807.2	46308.5	55967.2	62218.4	66193.7	70975.8
The final consumption expenditure	27543.5	29269.6	32514.6	37529.4	42976.4	47957.4	52484.5
households	19966.9	20985.9	23617.6	27192.5	30831.5	34671.9	38098.7
public administration	7359.9	8066.7	8671.3	10102.8	11888.7	13020.2	14104.7
non-profit organizations serving households	216.7	217.0	225.7	234.1	256.2	265.3	281.1
gross saving	10526.1	7344.8	10472.7	13982.5	15223.9	15131.8	14847.9
gross saving of fixed capital	9200.8	8535.7	10014.4	11950.33	13604.6	14487.4	14689.7
change in inventories	1325.3	-1190.9	458.3	2032.32	1619.3	644.4	158.2
Net export	3812.6	2887.7	3739.7	4776.5	4565.0	3922.3	4913.7
Export	12923.6	10842.0	13529.3	16940.9	18413.1	18944.9	21257.4
Import	9111.0	7954.3	9789.6	12164.4	13848.1	15022.6	16343.7

Figure 1 graphically represents the GDP breakdown dynamics in terms of expenditures in 2008-2014.

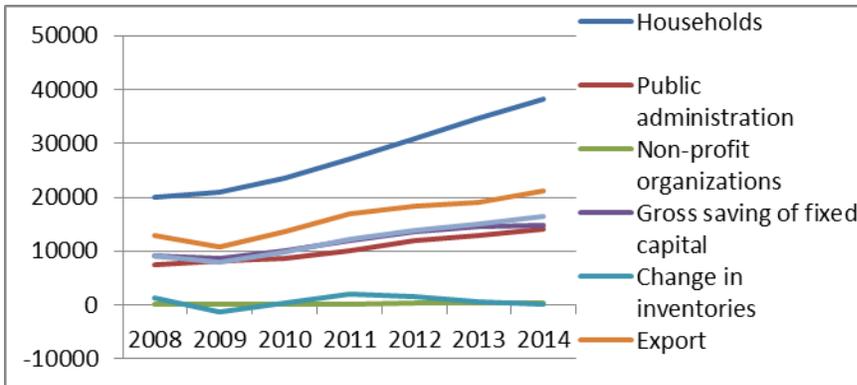


Figure 1: The GDP breakdown dynamics in terms of expenditures in 2008-2014.

Analyzing the GDP dynamics over the last two years we observe segmented reduction in the economic indicators growth rate. Thus, for example, gross saving in 2014 as compared to that in 2013 was reduced by 283.9 mln rubles. There was a change in inventories. Thus for example, in the reporting year there was a decrease in proper indicator by 486.2 mln rubles compared to baseline. The growth rate of private consumption expenditure in 2014 fell by 2.2% as compared to 2013, while growth in gross fixed capital formation decreased by 4.8% (Figure 2).

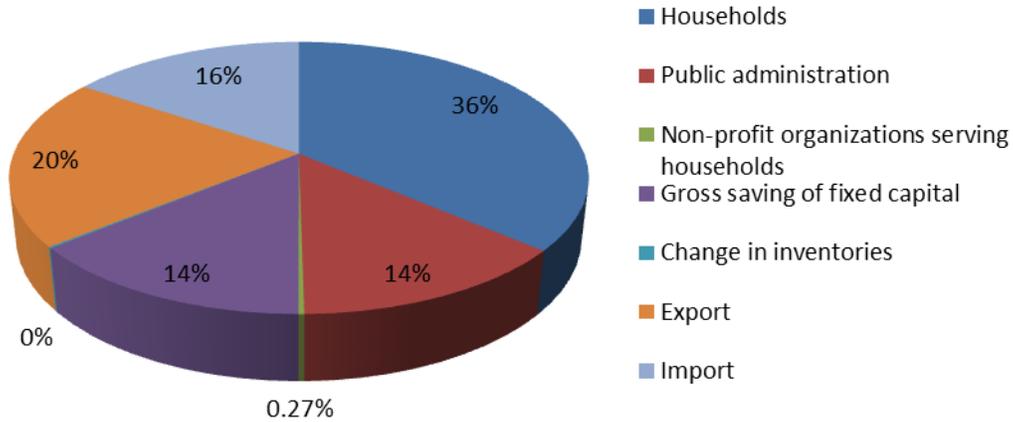


Figure 2: The GDP breakdown in 2014.

Returning to the analysis of the correlation matrix, it can be noted that the level of final private consumption depends directly on the level of government spending, prices level and level of taxation. This is logically explained by the fact that in the last period the state is clearly aware of the impact of taxes on the economic situation and the further consumption of the subjects.

Basically, the government pursues a policy of "built-in" stabilizers with the use of economic instruments which smooth down the impact of conjunctural changes, demand fluctuations. Built-in stabilizers include the use of progressive income tax measures, unemployment insurance, support of prices for agricultural products.

The system of built-in stabilizers reduces the magnitude of cyclical fluctuations, but, at the same time, it cannot ensure the transition to the economic growth. Therefore, "automatically acting countermeasures" and "the controlled cycle compensation program" are additionally used.

Countermeasures that can be taken at the stage of recession include the reduction of bank interest; reduction of the tax burden (the share of taxes in GDP); the purchase of government bonds by the Bank of Russia; reduction of legal reserve requirements, etc. The controlled cycle compensation program provides budgetary control measures in accordance with the trends of macroeconomic dynamics. For this purpose public expenses are limited during the growth of private investment and consumption, and the

budget surplus is accumulated, while in the period of recession, on the contrary, the stimulation of the business activity by increasing government expenditures can be observed.

To encourage and boost consumption, a number of tax benefits were developed for production facilities (in order to move partially to import substitution due to sanctions and the crisis of the last years) and the population as a whole (reduction of deductions to off-budget funds from 34 to 30%). The level of prices that affects the level of final consumption has an inverse relationship and a strongly correlates with this factor. The increase of such factor as the level of prices causes a partial reduction in total consumption [16,17].

The amount of gross investment also depends on the level of government spending. The role of the state is especially crucial under the current economic conditions of low level of investment flows and the continuing recovery of the investment market. The state's attitude, which is one of the components of the investment climate in the country, is very important for investors. The level of gross investment depends on the degree of infrastructure development and the government's encouragement of the certain sector [18].

The state regulation principles of investment activity are defined in article 11 of the Federal Law of 25.02.99 No 39-FZ (edition of 28.12.2013) "About investment activity in the Russian Federation implemented in the form of capital investments". The main state regulation principles include

- Creation of favorable conditions for development of investment activity, and
- Direct government involvement in investment activities.

Also, the government can affect investment activity through the depreciation policy, research policy, policy towards foreign investment, etc.

A close relationship is observed with respect to level of government spending and the level of prices. The economic situation of the last period had a very severe impact on these two factors. The level of prices calculated as the consumer price index in the last two years is not highly sustainable. It is caused by the sanctions imposed on Russia. Imported products have become partially unavailable and have increased tremendously in prices.

In addition, the analysis of the correlation matrix shows that the state, when forming spending, relies on tax revenues to a greater extent.

Government spending and taxes are the main instruments to influence the current economic situation. Proper use of these leverages will undoubtedly have an impact on aggregate demand and aggregate supply, and as a consequence, overall GDP as a whole [19]. Thus, the state can produce changes in aggregate demand for the final

product or service and influence the supply. The government, by applying its anti-sanction leverages, such as increasing public expenditure and reducing the tax burden, can increase aggregate demand [20]. If the state will not intervene in this situation, than the firms will be forced to reduce their investments under other conditions being unchanged, and the aggregate demand will fall.

It should be noted that the manipulation of government spending and taxes is a necessary measure in these complex economic periods. The change in government spending and taxes causes a change in the dynamics of aggregate demand and GDP. Reducing the tax burden and increasing state spending contributes to the stabilization of the economy. In connection with these functions, some government spending and taxes are called in economic theory the "built-in stabilizers" of the market economy.

During the periods of upturns or downturns in the economy, changes in government spending and taxes carried out by the authorities, have a mixed effect on the aggregate demand and GDP components. Thus, during recovery period, the government reduces its spending in order to reduce the growth of aggregate demand and GDP. During the recession, on the contrary, the authorities raise budget spending to support aggregate demand and GDP [21].

Considering the implementation of economic policy under the contemporary Russian conditions, when the state intervenes in the economy, which is in a quite complex situation, we can trace a parallel with the Keynesian theory [22].

Conclusions: Thus, the analysis of aggregate demand shows that the dynamic pattern of GDP depends largely on the dynamic pattern of consumer spending and the public expenditure while is influenced by other factors to a lesser extent. We can conclude that in contemporary conditions the state is taking short-term measures. To form long-term development trends of the Russian economy it is necessary to pay more attention to the investment component of aggregate demand [17]. In contemporary conditions, to prevent the state economy against falling into further depression caused by the restriction of imports and the outflow of investment, as well as to leave the state of encountered stagnation, the government needs to produce an increase in federal spending and direct them to additional encouragement of the productive sector. The manufacturing sector should start the process of liberation production as well as scientific and technical dependence from the West [23]. Increase in the expenditure side of the budget cannot be caused by increasing the tax burden for manufacturing companies. The government should review the existing state tax policy to implement the so-called "tax coefficients", which would reduce the tax burden of manufacturing facilities being in the development and formation process.

Further research of this topic seems to be challenging towards investigating the effect of import substitution and the ruble exchange rate dynamics on the pattern of aggregate demand policy.

REFERENCES

1. Mal'tsev AA (2014) Economic Science of the Postwar Era: the Vulgarization of Keynesianism or the Response to the Challenges. Bulletin of the Institute of Economics 2: 146-156.
2. Tyukavkin NM (2014) Economic Theory of Demand. Bulletin of Samara State University 6: 178-184.
3. Chinilina KA (2013) On the Use of the Keynesian theory: the Advantages and Disadvantages. Current Trends in Economy and Management: a New View 23: 19-22.
4. Khaykin MM (2013) The Evolution of Economic Theory as a Science: Today's Challenges. Economic Sciences 1: 48-53.
5. Suslova YY, Demchenko SK, Demchenko OS (2015) Scenario Forecast of the Economic Development of Russia for 2015-2017 and Stabilization Policy. Bulletin of Irkutsk State Economic Academy 1: 13-20.
6. Zadoya AA (2013) The Aggregate Demand Pattern in the Context of International Comparison. Psychology Economy Justice 4: 53-60.
7. Gizatulin RM (2013) Factor Analysis of Aggregate Demand in the Russian Economy. Horizons of Economics 3: 42-44.
8. Konevchshinskaya NN (2014) Features of Using the AD/AS Model under the Transformational Economy Conditions. Topical Issues of Economics 39: 18-25.
9. Kochkurova EV (2012) Structural Changes in the Economy of Contemporary Russia: Political and Economic Aspects. Moscow.
10. Kuz'bozhev EN, Shugaeva OV (2012) Structural Transformation and Sustainability of Production Systems. Moscow.
11. Melkumyan VN (2013) On the Justification of the Macroeconomic Balances Formula in the Aggregate Supply – Aggregate Demand Model. Economics series 2: 31-39.
12. Melkumyan VN (2014) On the Definition of the Functioning Mechanism of the Monetary Market in the Aggregate Supply – Aggregate Demand Model. Bulletin of Samara State University of Economics 6: 11-19.
13. Sinchuk IY (2012) Aggregate Demand and Aggregate Supply. 9: 18-25.

14. (2015) Federal State Statistics Service (Rosstat). Retrieved from www.gks.ru.
15. Zoreva MD (2013) Indexes of the Actual Ruble Exchange Rate. Retrieved from <http://www.fedstat.ru/indicator/description.do?id=42134>
16. Zel'dner AG (2012) State Functions in a Context of Uncertainty of Market Economy Development. Bulletin of Samara Finance and Economics Institute 13: 4-10, Retrieved from <http://www.eLIBRARY.RU>
17. Delyagin M (2014) Western Sanctions as a Prerequisite for the Recovery of the Russian Economy. Bulletin of Analytics 2: 14-22.
18. Sadokhin YN (2012) Investment Policy and Economic Growth Features in the Federal Districts of Russia. Forecasting Issues 3: 24-28.
19. Mirkin Y (2014) Everybody Lose from Sudden Movements. Russian Federation Today 7: 46-49.
20. Shlyamin V (2014) Partnership Traditions and Sanctions. International Economy 6: 4-11.
21. Pogosov IA (2014) Resources Balance and Use of Production in Russia in the Beginning of 21st Century. Institute of Economics, Russian Academy of Sciences, Moscow, Russia.
22. Kukeeva AA (2011) Effect of Federal Taxes and Government Spending on Aggregate Demand and GDP. Proceedings of the International scientific conference on contemporary economy problems pp: 20-21.
23. Gusev KN (2015) Russia and the EU: Peculiarities of Economic Relations under Contemporary Conditions. Banking Business 2: 57-62.