

Направление 3. Макроэкономическое моделирование. Развития экономической системы

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KEYNESIAN INVESTMENT MULTIPLIER: FROM THEORY TO PRACTICE

One of the main problems of modern theoretical economic and business practices is the study of sustainable economic growth of the society. The basic problem of economic growth generally falls into two main components:

- 1) identification of a set of dominant macroeconomic growth factors;
- 2) the study of the forces, direction and mechanism of the correlation between these factors.

Among the factors-hypotheses that may be potential agents of such effects we can distinguish primary investments, quality of consumption and savings, quality and quantity of borrowed resources, technology etc. They mainly act as the subject of study in different models of economic growth. One of the most reputable and solid models of economic growth is the investment multiplier model.

Mechanism of the investment on the level of production and gross income is based on the multiplier effect, the effect which was explained by John Maynard Keynes in his work "The General Theory of Employment, Interest and Money" (1936) [1, p. 358]. The main attention is paid to aggregate demand, which determines the amount of aggregate consumption and investment. Keynes showed that the annual increase in national income (ΔY) is determined by the annual net investment (ΔI) and a special rate - multiplier factor (k):

$$\Delta Y = k \cdot \Delta I \quad (1)$$

So, in Keynesian theory, multiplier is the factor, that shows the dependence of the income change from investments.

Also Keynes deduces the indicators of marginal propensity to consumption (MPC) and savings (MPS), which can be associated with multiplier:

$$k = 1 / (1 - MPC) = 1 / MPS \quad (2)$$

As the pace of economic growth at the macro level is determined by multiplier, in order to increase the rate of growth it is important to increase consumption (aggregate demand) and reduce the total savings (you need to consume as much as possible, spending a maximum share of income on this). This Keynesian conclusion (in 1936) impressed his contemporaries as it was directly in conflict with existing microeconomic approach, calling to comprehensive savings and saving all the resources and revenues.

However, the statement of multiplier proposed by Keynes has more mathematical nature, and it simply explained the fact of the correlation between changes in income and changes in investments in a given time. Therefore, this multiplier determines the static (fixed, frozen) nature of the correlation and does not disclose the reasons of this correlation.

Simplified theoretical model of investment multiplier mentioned above, despite its consistency and harmony is not complete and settled. Let's analyze based on macroeconomic data that characterize the economy of Ukraine in the past 10 years, the empirical accuracy of

the multiplier investment model (Table 1). We have made calculations and comparisons of actual macroeconomic data with similar variations of theoretical hypotheses. Thus, for the calculation of a hypothetical increase in national income (ΔY), we used a basic formula of investment multiplier ($\Delta Y = k \cdot \Delta I$). Conversely indicator k was calculated based on the actual data of the dynamics of indicators of marginal propensity to consume (MPC) and the marginal propensity to save (MPS). The value of a hypothetical magnitude increase in national income, received in simple mathematical calculations, differed significantly from the actual data of the national accountancy for the period.

Hypothetical value of the increase in national income will preferably be much greater than the actual value, because with each successive cycle change in income not only additional consumption arises, but also does the additional investment. The process of multiplication under these conditions depends not only on the marginal propensity to consume, marginal propensity to invest (IRI), but also other variables not included in the model multiplier. Another reason of the disparity of actual and calculated values of national income growth for the period is different depth of "methodical penetration" in the heart of the problem of theoretical model "multiplier" on one side, and the system of national accounts presented in the form of documents in the State Statistics Service of Ukraine on the other. The applicable disadvantage of the theory "multiplier" also should determine its inflation saturation, because it appeals to the nominal value variables without bringing them to a real, deflated level.

Table 1

The dynamics of the main macroeconomic indicators
Of Ukraine for the period from 2000 to 2010, mln. [2].

Indicators	Years										
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Actual increase in NI	-	38714	24365	42997	79410	95877	100645	183912	220577	-31803	187307
Investments	23629	32573	46563	59899	89314	111174	148972	222679	272074	192878	189061
Investments increase	-	8944	13990	13336	29415	21860	37798	73707	49395	-79196	-3817
Consumption	127982	156344	170325	201624	245556	337879	424906	558581	758902	772826	914230
Consumption increase	-	28362	13981	31299	43932	92323	87027	133675	200321	13924	141404
Savings	41896	52248	62632	74330	109808	113362	126980	177217	197473	151746	197649

Savings increase	-	10352	10384	11698	35478	3554	13618	50237	20256	-45727	45903
MPC	-	0,73	0,57	0,73	0,55	0,96	0,86	0,73	0,90	-0,44	0,75
Multiplier coefficient (k)	-	3,70	2,33	3,70	2,22	25	7,14	3,70	10	0,69	4
Estimated increase in national income ($\Delta Y = k \cdot \Delta I$)	-	33092,8	32596,7	49343,2	65301,3	546500	269877,72	272715,9	493950	-54645,24	-15268
Index deviation (actual from calculated)	-	56212	8231,7	6346,2	14108,7	450623	169232,72	88803,9	273373	-22842,24	-202575

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