

# The Market Laws Declaration of Economic Development of the Countries Worldwide

S.Baizakov<sup>1</sup>, A. Oinarov<sup>2</sup>, J. Yi-Lin Forrest<sup>3</sup> and N.Baizakov<sup>4</sup>

<sup>1</sup>*JSC, Economic Research Institute, Astana, Kazakhstan;*

<sup>2</sup>*JSC, Kazakh center of public and private partnership, Astana, Kazakhstan;*

<sup>3</sup>*Pennsylvania State System of Higher Education, Astana, Kazakhstan;*

<sup>4</sup>*JSC stana-Project, Astana, Kazakhstan*

## Abstract

The mathematical formulation of a problem of market balance of levels of production, employment, the income and the prices is considered. The new market model of work which focuses economy on the end result is constructed. It becomes clear why development of market forces of work and the capital in economy branches, contrary to desires of businessmen on accumulation of competitiveness of the enterprises, happens according to laws of development of market economy.

**Keywords** Equilibrium; Balanced Growth; Table Input-Output; Model; Laws

## 1 Introduction

The analytical work to assess the costs and benefits of the regulatory impact on the development of the national economy was successfully carried out in Europe and in other developed countries. Appropriate tools in Russian-speaking countries are known under the following names: regulatory impact analysis (RIA) and Regulatory Impact Assessment (RIA). The ability to analyze the influence of the regulatory impacts on the economy, and to use them in the evaluation of scientific and technological changes in the economy, is very useful for developing countries.

If we study the regulatory impact analysis tools on the development of the national economy, it is possible to distinguish two types of them. The first type of regulatory impact influences on macroeconomic indicators, and the second type of regulatory impact influences on the performance of enterprises at the microeconomic level. The first one mainly influences on the cost of capital, in the form of money, while the second one has an impact on the cost of capital, in the form of the product. It should be noted that changes in the cost of capital in the form of money, and the cost of capital in the form of the product are measured with units of national or global currency banknotes.

The *President of the Republic of Kazakhstan Nursultan Nazarbayev* in his article “*The Fifth Way*”, which has been written during the crisis of 2007-2009, marked the presence of the third type of regulatory impact influencing on the level of development of the national economy[1]. The “*Fifth Way*” demonstrates the necessity of an objective assessment of the social and economic subsequences

of those three types of regulatory impacts. The conclusion that appears from the logic of the “Fifth Way” is to ensure the mutual consistency of the indicators of all types of regulatory impact that have a crucial importance in determining the true value of money capital in macroeconomics and the true cost of the commodity-capital in microeconomics.

This principle of mutual consistency of regulatory impacts defined in the “Fifth Way” has become the foundation of the concept of building cross-sectoral assessment models of levels of production market balance, employment, incomes and prices developed by the initiative group of Kazakhstan in early 2010. Thus, the initiative group of Kazakhstan in 2010, sparing no effort and energy performed the implementation of the ideas proposed by the President of Kazakhstan on the assessment of the influence of economic governance policies not only on the true cost of capital in the form of money, and on the true cost of capital in the form of the product. This initiative group reviewed in detail the basic principles of market economy management models associated with the name of Keynes, monetarists and Mundell-Fleming[2].

As we know, those models are now extensively used in the analysis of the market economy development. Firstly, it appeared that the main indicator of market forces analysis of capital in the form of money in all those three models is a nominal GDP, and the main indicator of market forces analysis of capital in the form of goods – a real GDP in the Keynesian and monetarist models, GDP, and according to purchasing – power parity in the Mundell-Fleming model.

Secondly, the Kazakhstani initiative group has proved that the principles of building models of the monetarists and Mundell-Fleming have a single macroeconomic root which was defined by a known Keynesian theory of the equation of demand and supply for the goods and services. Since the principles of all those models of economy analysis and management have been developed with the use of the system of the same macroeconomics indicators which had been created by Keynes.

Thirdly, it was discovered that in the system of equations of market balance, created by Keynes and his followers, there is no microeconomics indicator: all models of the economy analysis are based on macroeconomic theory and are not related to microeconomic theory and microeconomic indicators.

Fourthly, it became known that Keynes is the author of separation of a unified indicators system of the national economy, which was defined in the classical economic science, in the part of macro- and microeconomics.

Fifthly, it is determined that all of those models are based on the one assumption between the capital in the form of money and the capital in the form of the product. Keynes has based his principle of construction of his model on the macroeconomic stability of the prices for goods and services, and the monetarists

– on macroeconomic stability of the money turnover velocity, but Fleming and Mundell – on the macroeconomic stability of the national currency exchange rate.

Consequently, representatives of the initiative group during the formation of the Kazakh model of economic management had a reason to accept the hypothesis of a possible omission of Keynes made in the course of a single economic system breakdown on macroeconomics and microeconomics, and to mark the uncritical attitude of monetarists as well as of Mundell and Fleming towards this omission.

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There are no words that all of those models were popular management tools of market economies of that time, this can be proved by the sustainable development of the world economy until 2007. However, Keynes in due time determining the indicators of macroeconomics used the method to minus the material costs from sales of goods and services. And he created a new macroeconomic indicator called the gross domestic product. This arithmetic operation allowed the authors of macroeconomic theory to get rid from microeconomics indicators. As a result, in the study of the cost of the financial capital are mainly engaged macroeconomists, and with cost of commodity capital - microeconomists.

As it became known much later, after Keynes, the determination of the solve equations of mutual dependence of the final result of the production from the gross sales of goods and services does not require arithmetic but deeper calculations using matrix algebra. The searches of the Kazakh initiative group showed that the foundation of this dependence is determined by the system of equations describing the dependence between macroeconomic and microeconomic indicators as follows[3]:

By economic sectors–

$$t(i)X(i) - T(i)Y(i) = \pm\Theta(i), i = 1, 2, \dots, n$$

By national economy–

$$c \equiv \frac{t}{T} = \frac{Y}{X},$$

where  $t(i) = \frac{L(i)}{X(i)}$ – time spent by the people themselves, in relation to one tenge, received from the sale of goods and services by economic activity, expressed in hours, days, months, years;

$T(i) = t(i)B$ – the total time spent by people on the job, per one tenge, received from the sale of goods and services by economic activity, expressed in hours, days, months, years;

$tX = L$ – National Fund of working time, calculated by gross domestic product (X) is determined by the balance of the time model of inter-sectoral working

people, expressed in man-hours per year, man-days a year, man-year, people a year;

$TY = L$ – National Fund of working time, calculated by the volume of the end product (Y) is determined by the balance of the time model of inter-sectoral working people, expressed in man-hours per year, man-days a year, man-year, people a year;

$T_i Y_i - t_i X_i = \Theta_{ij}$ – the difference between the cost of working time, defined in terms of the final product (Y) and the working time defined in terms of gross product (X), expressed in man-hours per year, man-days a year, man-year, people a year;

$B = (E - A)^{-1}$ – inverse matrix of the full costs of the Kazakhstan economy, as determined by inter-branch model, where A - the technological matrix of the economy of Kazakhstan by types of economic activity, and E - special algebraic matrix units.

The final result of the analysis of the regulatory impact on the development of the national economy of Kazakhstan is the difference between the growth rate of capital in the form of money in macroeconomics and of capital in the form of goods in microeconomics:

$$\frac{\dot{c}}{c} = \frac{\dot{Y}}{Y} = \frac{\dot{X}}{X},$$

This difference arises from the opposite direction of capital flows in the form of money and of capital in the form of the product which have different flow rate. It can be called the coefficient of scientific and technological change, as it has appeared, as a manna from heaven, from the ceiling, with strict equality of the working time spent on the creation of the end product ( $Y = C + G + I + NX$ ) in macroeconomics and gross domestic product (X) in microeconomics. So that, this difference is a net contribution of scientific and technological progress determined by the difference between productivity of the end product and productivity of GDP. In other words this success comes from within the country's economic system determined by its interdisciplinary development model.

Now we can explain any innovative initiative which is linked to scientific and technological changes in the national economy not only by an abstract definition of “scale” production or Solow residue, but by the cost spent on the production of specific working hours, the specific productivity of labor and capital, the ratio of scientific and technological progress. In addition, every entrepreneur can perform the same calculation for each type of their economic activity.

Now, the true value of the national currency can be estimated by dividing the rate of scientific and technological changes on the GDP deflator, and the index of inflation will be determined by a formula which is different from the formula of the GDP deflator. The system of laws of the market economy determined due to the coefficient of scientific and technological change, includes the following

related equations:

- equation of the law determining the overall impact of stimulating scientific and technological improvements –  $c(t)$ :

$$c(t) = Y(t)/X(t)$$

- equation of the law determining the purchasing power of money –  $pp$ :

$$pp(t) = (c(t) * i2(t))/i1(t);$$

- equation of the law determining the prices of goods and services –  $pc(t)=1/pp(t)$ :

$$pc(t) = 1/pp(t) = i1(t)/(c(t) * i2(t));$$

- basic law equation determining the real volume of the end product, measured by the real cost of capital in the form of money, as an indicator of real economic growth –  $i3(t)$ :

$$i3(t) = pp(t) * i1(t);$$

- basic law equation determining the real volume of the end product, measured by the real cost of capital in the form of goods as the benchmark of real economic growth –  $i3(t)$ :

$$i3(t) = c(t) * i2(t);$$

- equation of the law of general price deflation –  $b(t)$ :

$$b(t) = c(t)/pp(t) \equiv i1(t)/i2(t);$$

- equation of the law determining the net benefits of stimulating scientific and technological improvements –  $dc(t)\%$ :

$$dc(t)\% = \frac{\dot{c}}{c} = \frac{\dot{Y}}{Y} = \frac{\dot{X}}{X}.$$

It should be noted that the index  $i1(t)$ , is the rate of growth of gross domestic product for the price of the current year, while the index  $i2(t)$  - the price of the previous year.

progress of the US economy and China for 2002-2011 according to the input-output balance of these countries.

As the table shows, in the period from 2002-2008, both countries were characterized by trends to reduce the cost of capital in the form of money ( $Y$ ), which falls per unit of capital in the form of goods ( $X$ ). This means that both countries, return on equity, in the form of money decreased, rates of STP were declining trend. This situation lasted until 2009 fresh. In spite of the substantial difference in the level of indicators of scientific and technological progress, the two countries after the crisis of 2007-2008 has a regulating effect on the level of the coefficient

of NTP so that stop further depreciation of the national currency.

But they have different approaches. For example, in the United States since 2009 have been lowered growth rate of the cost of capital in the form of money and the cost of capital in the form of the product, so as to achieve better rate of scientific and technological progress. In China, by contrast, produced faster growth rate of growth capital in the form of money, compared to the growth rate of capital in the form of the product.

**Table 1** Comparative assessment of indicators of scientific and technological progress of the US economy and China for 2002-2011 according to their input-output balance (mM in USD).

Years	USA			China		
	End product (Y)	Gross product (X)	NTP Coefficient=Y/X	End product (Y)	Gross product(X)	NTP Coefficient =Y/X
2002	10416078.53	18873334.93	55.2	1324753	3794147	34.9
2003	10938122.88	19828498.07	55.2	1485275	4457621	33.3
2004	11736535.23	21264711.1	55.2	1760018	5372764	32.8
2005	12549008.41	23072266.04	54.4	2001206	6527490	30.7
2006	13280785.08	24479922.11	54.3	2354040	8160175	28.8
2007	13844412.73	25795266.08	53.7	3019764	10740915	28.1
2008	14214545.69	26565031.96	53.5	3951859	13913136	28.4
<b>2009</b>	<b>13775598.08</b>	<b>24802899.21</b>	<b>55.5</b>	<b>4538041</b>	<b>15149965</b>	<b>30</b>
2010	14230107.43	25810105.94	55.1	5401801	18070490	29.9
2011	14770666.86	26918120.33	54.9	6777332	22271025	30.4

Source: developed by the author based on the table “input-output” of these countries.

### 3 Discussion and Conclusion

Now when we already know the trends of scientific and technological progress, which are determined by the correlation between the two main indicators of the market economy, namely, between the cost of the end product, which expresses the cost of capital in the form of money and the value of gross domestic product, which expresses the cost of capital in the form of the product, you can do strong statement: the law of scientific and technological progress and related laws of the market economy are a reflection of objective processes occurring in it, and they are independent of the will of the people. No one in the world can not change or cancel them.

Therefore, people can only identify, understand and learn these laws. Do not consider their actions in the practice of economic management - equivalent to curb the development of a market economy, its inhibition of further liberalization. This is to ensure that the laws of market economy, equivalent to the laws of natural science and nature. I can even say so that a natural disaster happens in one place, in one country, and the collapse in the developed economies as a

contagious disease spreads rapidly on the economies of developing countries.

Therefore, science and technology indicator changes justified by the Kazakhstani initiative group, as the law of the market economy, is suitable for use in the analysis of the economies of all countries of the world. And it will be best if we call these economic laws system tools capable for economic analysis and regulatory impact assessment models such as the Keynesian model, the monetarists and the model of Mundell and Fleming. This is due to the fact that any of these models is reduced to the particular case of the following generalized equation, Kazakhstan proposed an initiative group to assess the actual final product anywhere in the world, including even such large countries like the US and China:

$$pp * NGDP = c * RGDP \quad (A)$$

This indicator measuring the end product is significantly different from the nominal gross domestic product (GDP), real GDP and the GDP determined by purchasing-power parity, which are included in the current model of Keynesianism *deystvuyushie*, monetarists, Mundell and Fleming. Model (A) determines the power of the final product, used in the country and consists not only of the domestic product of the country, but also its product to come from external trade turnover. The new indicator measuring economic growth is the development of money equilibrium assignment ( $pp * NGDP$ ) capital level of trade (with  $* RGDP$ ) capital. It is the final product, and not the nominal (NGDP) and real GDP (RGDP), let alone the GDP determined by purchasing power parity, is a tool for sustainable development of the national economy and the real measure of well-being of its people.

The measure defined by the equation of market equilibrium (A), is common for the economy and the economy of consumption of goods and services, as well as for the economy of the monetary and financial system. It is a new measure, adapted to the level of development of the productive forces of labor and capital in a globalized world economy.

It can be used to assess the regulatory impact on the economic development of any country, any region of the world, since the value is the true purchasing power of the national currency, and the value is a measure of real indicator of scientific and technological change.

This measure determining indicators of scientific and technological changes in the past never been used and is a new phenomenon in the development of world economics. And because the core of this declaration on market laws of economic development of the countries of the world is the progress in economic science, especially in the science of economic management, which are hidden multibillion-effects from the use of reliable tools of the regulatory impact.

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**Corresponding author**

Sailau Baizakov can be contacted at: baizakov37@mail.ru