

MACROECONOMIC FACTORS OF LABOR TRANSBOUNDARY CROSSING

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Fast growing international migration as a factor of labor globalization now is one of the most important trends of world economy and determinant of social – political transformations. Study of fundamental economical reasons for international migration is relevant due to their prognostic, predictable and normative potential, which can be used in conditions of global economic non-stability.

This paper analyzes role of natural-resources, financial and labor factors in economic growth of the modern states; studies relationships between stimulating role of natural resources, finance and labor with levels of modern countries' economy development.

Based on achieved results findings about fundamental reasons of international migration; transformation of labor factor's role in providing an economical progress of the states; efficiency of positive impact of manufacturing factors (domestic and attracted from international markets) were offered.

Keywords: international migration, migrant, labor productivity, economy efficiency of migration, migration policy



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Introduction

Factors for national economy development within the frames of complex global economic system, as well as conditions for long-term economic progress even in turbulent market environment have always been prior areas of science research.

Analysis of economic growth and factors affecting it; consideration of economic cycles, alternating economical ups and downs stages; studying of the role of labor resources in ensuring an economic dynamic of modern states now are a basis of social-economy forecasting and serve as a theoretical principle for national economic policy formation and development.

Economic growth as criteria of national economic and social system development is an original result of Governmental economic activity, is an indicator of National well-being and is a guarantor of economic independence. Stability of economic growth, it's dynamic and qualitative content can demonstrate a real economic health of society.

Today, economic growth is a central problem of macroeconomic policies of all nations and states. On the one hand, the national states are intertwined by complex cross-border economic relationships with the participation of MNCs and international economic regulators. On the other hand, even in the conditions of economic globalization the dynamics of economic growth preserve asynchronous, own deterministic by external economic conditions and by domestic resource potential, by local criteria of economic development reached before.

Literature review

The formation of theory of economic growth at first stage was under the strong influence of researchers focused on theory of economic dynamics.

In the early twentieth century theories of economic growth and cycles formed in parallel. In particular, it is now well-known an attempt to create a model of economic growth (economic dynamics) by N. Kondratiev (1928, 210-223) and to develop an aggregated conjuncture index.

The basic inputs for formation of the theory of economic growth have been carried out in the operation of National Bureau of Economic Research (NBER) in the United States under the heading of Mitchell, W. He focused on the analysis of economic cycles and market conditions. Formation of theory of conjuncture, that means an interrelated movement of cycles of different lengths also occurred in Russia, Germany, Switzerland, Sweden, and has been associated with the names of Röpke, P. (2016), and Kondratiev, N. (1928).

Note that all of these approaches are closely linked. The concept of the industrial cycles by Tugan-Baranovsky, M. (2007) had a major influence on the development of world economic thought in general in XX century. In this approach logic of economic cycles explained by:

- mechanisms of fixed capital formation;
- relationships between investment dynamic and loan interest rate.

Ideas of Mitchell, W. (2008) and Tugan –Baranovsky, M. affected a formation of economic growth' concept of Kuznets, S. and Hansen, E.

It is obvious today that the theory of the investment cycle by Tugan –Baranovsky, M. was a basis of the theory of leading sector formation by Kuznets S. (1968, 19-26). This facilitated a development of the theory of neoclassical growth (approaches of Blacksmith - Solow), nonaggregate theory of economical growth (approaches of Blacksmith - Rostow) and theory of technological structures.

Under NBER auspices developments of Kuznets, S., Hicks, J. (1973), Harrod, R. (1973) and other scientists contributed a formation of the theory of economic growth. The theory of economic dynamics (cycles and market conjuncture) has been regarded as passed historical stage of economic science development and postulated the idea of crisis-free economic growth. Finally, the theory of market conjuncture was emasculated to the level of applied science, realizing own potential at the level of analysis of individual commodity markets and became a part of marketing.

If to consider development of the theory of economic growth through the prism of its relationship with problems of cycles and endogenous components of economic development, this progress can be represented in following steps:

1. J. Keynes (1936) model was under influence of cyclic paradigm that influenced on the emergence of the concept of economic multiplier. It should be noted that, historically earlier theory of the investment cycle by Tugan –Baranovsky, M. had a number of similarities with the later Keynesian theory of growth. Tugan- Baranovsky, M. and subsequently Keynes, J. considered multiplicative chains between investments, national income growth, increasing of demand and emergence of new sources for investment.

Using a theory of over-accumulation by Marx, K., Tugan –Baranovsky, M. proved even a multiplicative effect of recession.

2. First Keynesians (Keynesian model of the Harrod - Domar) arguments contained reminiscences of industrial cycle and based on very strict technological assumptions (the constancy of the ratio between capital and labor that is independent on the quality of the labor and capital). So why this model was criticized by Solow, R. - founder of the neo-classical model.

3. An emergence of the neoclassical theory of economic growth of Solow R. with elastic production function and certain degree of freedom for the inclusion of additional factors of development (Solow residue) (1974, 78-82). Solow model is sufficiently well-known and focused on the analysis of alternative concepts.

4. Model of Tobin, G. (1992, 192-198) based on mention that money is an asset equal to the physical investment. Value of Tobin theory for development of theory of growth and for its own practical usage is very high. This impact is indirect through the influence on the theory of economic cycles.

In general, a development of the theory of economic growth in the XX -XXI century shows that in the most general a business cycle can be explained by the different effect of feedback and multipliers acting in the economic system. Factor structure of economic growth is sufficiently open, is not limited by the interaction of labor and capital - or, for example, by the products of new technologies and effective demand.

In addition, economic growth as a macroeconomic phenomenon generates at different levels of the economy. In these terms a behavior of economic agents (for example, the propensity of entrepreneurs to innovate, or consumer preferences changes) must be taken into account.

In this regard, an accumulated stock of economic science and research methods in the field of technological, industrial and macroeconomic dynamics provides a possibility to develop delicate instruments for regulating of growth processes, based on industrial indicators.

Finally, a legitimate interest in recent years belongs to the growth models that based on non-linear nature of the relationship factors for development. Their solution forms a cyclic trajectory as well as models that are directly based on the usage of functions that reflect a cyclical nature of economic development.

Most of existing approaches identifies few factors for economic growth that are related with natural resources, finance, labor and technological capabilities of the country. In this study we evaluated a role of each factor (resources, finance and labor) in providing of economic growth for modern countries from 2004 to 2016.

It should be noted that proposed study is not leveling a value of factor of innovative and technological development for countries' economic growth. In the limited frameworks of this study we considered a factor of innovativeness of national economic system in conjunction with national labor potential.

This decision is explained, firstly, through the direct relationship between innovative potential of the country and skills of its labor force; and secondly, due to dependence of initial innovation capacity of the state, national innovative background (that is required for generation and commercialization of innovations) on the quality of labor relationships in the country (for example, role of the human capital in production, level of investments in the human capital, degree of intellectualization of production and so on).

The purpose of the study is to determine (based on the analysis of countries' macroeconomic indicators) an importance of three factors (natural resources, human resources and financial resources) to ensure a dynamic of economic growth of the modern states in short term (2004 - 2016).

In connection with this purpose following research objectives were set:

to analyze an impact of natural-resource potential on countries' economic growth based on calculation of economic efficiency of natural resources using by modern national economic systems;

to define the role of financial resources of the country (based on financial macroeconomic indicators) to ensure countries' economic growth;

to characterize an importance of labor potential of countries (own or attracted from abroad) in implementation of the world economic progress;

to track a dynamics of factors for economic growth in modern states for last 8 years (from 2004 to 2016);

to test an effect of "diminishing utility" for three factors of economic growth (resource, financial, and labor);

to correlate dynamics of economic growth in the world with dynamics of economic efficiency of the using of natural, financial and labor factors in national economic systems;

To conduct the study following hypotheses were identified:

H1 - The dynamic of economic growth of the countries causes a disproportionate change of economic value of labor, natural and financial resources in economic progress.

H2 - The financial aspect of economic growth is most susceptible for effect of diminishing utility, while the labor factor of economic growth is out of this pattern.

H3 - Labor factor (including a factor of innovativeness) is the most important for economic growth of developed countries (with medium or low rate of economic growth).

H4 - Financial resources are the most significant for economic growth of developing countries (with medium or high rate of economic growth).

H5 - Natural resource potential is less important for economic growth of the countries with big natural resources potential (effect of diminishing utility).

The main focus of the study

The results of stimulating economic growth impact of natural resources, financial and labor factors are presented in Tables 1, 6 and 7.

Table 1 – Stimulate impact of natural resources on economic growth of the modern countries (leaders and outsiders), 2016

(Source: made by co-authors)

№	Leaders	Index of stimulating impact of natural resources ¹	№	Outsiders	Index of stimulating impact of natural resources
1	Philippines	82,83	58	Sweden	24,84
2	Peru	77,28	59	Slovak Republic	24,66
3	Colombia	76,5	60	Belgium	24,61
4	India	75,83	61	United States	24,29
5	Morocco	73,22	62	Venezuela, RB	23,71
6	El Salvador	73,09	63	Latvia	22,8
7	Sri Lanka	72,51	64	Kazakhstan	22,53
8	Thailand	67,95	65	Finland	21,34
9	Panama	67,14	66	Canada	21,13
10	Montenegro	63,86	67	Saudi Arabia	20,92
11	Indonesia	62,4	68	Australia	19,86
12	Tunisia	61,05	69	Norway	18,32
13	Brazil	58,71	70	Kyrgyz Republic	12,27
14	Vietnam	58,35	71	Armenia	9,78
15	Bangladesh	58,21	72	Iceland	9,48
				Average Index	23,1

Taking in account that balanced value of each of three analyzed factors in countries' economic progress should be about 33%, we can note that possible highest role of natural-resources in economic progress belong to rapidly developing countries of the Asia-Pacific region, North Africa and Latin America.

At the same time, countries with developed economic systems, and modest dynamics of economic growth (such as European Union, the United States), as well as small countries that are geographically deprived of powerful natural-resource basis (such as Kyrgyzstan or Armenia) have small stimulate impact of this factor.

In order to test a hypothesis of diminishing economic efficiency of natural-resources for economic growth, we made a comparative analysis of groups of different countries.

¹ Maximal Index (100%) means that country is developing only due to own natural resource potential

The first compared groups present countries with largest and smallest (among the analyzed countries) territories (land is one of the most important natural resource). The comparison of these groups is shown in Table 2.

Table 2 – Comparison of natural resources' stimulating impact in biggest and smallest countries of the world, 2016

(Source: made by co-authors)

Index of stimulating impact of natural resources	TOP-15 countries with smallest territories ²		TOP-15 countries with biggest territories	Index of stimulating impact of natural resources
67,14	Panama	1	Peru	77,28
30,46	Ghana	2	Colombia	76,5
33,52	Singapore	3	India	75,83
33,24	Denmark	4	Indonesia	62,4
72,51	Sri Lanka	5	Brazil	58,71
31,75	Netherlands	6	Mexico	57,62
24,66	Slovak Republic	7	China	53,36
63,86	Montenegro	8	Bolivia	52,72
24,61	Belgium	9	South Africa	43,15
73,09	El Salvador	10	Russian Federation	31,2
61,05	Tunisia	11	United States	24,29
25,31	Estonia	12	Kazakhstan	22,53
36,56	Cyprus	13	Canada	21,13
35,63	Costa Rica	14	Saudi Arabia	20,92
30,94	Georgia	15	Australia	19,86
42,95	Average			46,5

Results of comparative analysis show that stimuli role of natural resources in ensuring of countries' economic growth is not reducing together with growth of their natural resource potential. However homogeneity of this group is very low. For example, the value of natural resource potential in economic growth of geographically large Peru and Saudi Arabia differs in 4 times!).

Tested impact of natural resources on economic growth of the countries - traditional exporters of natural resources (hydrocarbons and metals), we can also see a low correlation between degree of this impact and countries' resource potential. The results of correlation are shown in Table 3.

Finally, only testing of the correlation between stimulating impact of natural resource potential and level of countries' economic development (GDP per capita) confirms that the role of natural resources in economic growth of developed countries is significantly lower than in developing ones (Table 4).

Data in Table 4 shows that countries with the lowest GDP per capita remain extremely high role of natural resources in ensuring their economical growth. On the one hand, this can be explained by simply lack of other sources for economic progress (for example, financial resources or skilled labor) in the poorest countries. On the other hand, this fact proves an urgent need to find new, more efficient sources for economic growth in the poorest countries,

² Placed in order of diminishing of index of natural resources potential stimulating impact

deprived of own natural resources (eg , Jordan and Kyrgyzstan), that will be able to guarantee long-term and responsible strategy for national economic progress.

Table 3 - Index of stimulating impact of natural-resource factor in the countries - traditional exporters of natural resources

(Source: made by co-authors)

№	Country ³	Index of stimulating impact of natural resources	№	Country	Index of stimulating impact of natural resources
1	Norway	18,32	8	Russia	31,2
2	Saudi Arabia	20,92	9	South Africa	43,15
3	Canada	21,13	10	Malaysia	55,29
4	Kazakhstan	22,53	11	Chile	55,49
5	Venezuela, RB	23,71	12	Mexico	57,62
6	United States	24,29	13	Brazil	58,71
7	UAE	25,9	14	Indonesia	62,4
				Average index	37,7

Table 4 - Comparison of natural-resource factor's impact on economic growth of 15 richest and 15 poorest countries⁴, 2016

(Source: made by co-authors)

Index of stimulating impact of natural resources	TOP – 15 Richest economies ⁵		TOP – 15 Poorest economies	Index of stimulating impact of natural resources
9,48	Iceland	1	Kyrgyz Republic	12,27
9,48	Norway	2	Paraguay	25,47
9,78	Australia	3	Ghana	30,46
12,27	Canada	4	Zambia	35,04
18,32	Finland	5	Jordan	52,14
19,86	United States	6	Pakistan	52,69
20,92	Belgium	7	Bolivia	52,72
21,13	Sweden	8	Egypt, Arab Rep.	53,8
21,34	France	9	Bangladesh	58,21
22,53	Netherlands	10	Vietnam	58,35
22,8	Austria	11	Indonesia	62,4
23,71	Denmark	12	Sri Lanka	72,51
24,29	Singapore	13	India	75,83
24,61	Japan	14	Peru	77,28
24,66	Germany	15	Philippines	82,83
19,012			Average	53,4

³ Placed in order of diminishing of index of natural resources potential stimulating impact

⁴ By number of GDP per capita, among 72 considered countries

⁵ Placed in order of diminishing of index of natural resources potential stimulating impact

At the same time, in rich countries, even with high natural resource potential (eg, Norway, the U.S., Australia) factor of natural resources impact has not a leading role. Therefore, we can conclude that economic progress of rich countries is providing by their natural resource potential for only 20%. At same time dynamic development of the world poorest countries bases on their natural wealth for more than half.

We can consider BRICS countries separately (Table 5).

Table 5 – Index of stimulating impact of natural resources potential in BRICS countries, 2016
(Source: made by co-authors)

№	Country	Index of stimulating impact of natural resources potential	№	Country	Index of stimulating impact of natural resources potential
1	Russian Federation	31,2	4	Brazil	58,71
2	South Africa	43,15	5	India	75,83
3	China	53,36		Average in group	52,45

Table 6 - Impact of financial factor on the stimulation of economic growth of the modern countries (leaders and outsiders), 2016
(Source: made by co-authors)

№	Leading countries	Index of stimulating impact of financial factor ⁶	№	Outsiders	Index of stimulating impact of financial factor
1	Uruguay	92,47	58	Belgium	4,44
2	Armenia	87,58	59	Japan	4,37
3	Kyrgyz Republic	86,19	60	Malaysia	4,21
4	Paraguay	69,07	61	Spain	4,08
5	Ghana	64,1	62	France	4
6	Georgia	61,96	63	Chile	4
7	Latvia	59,26	64	Netherlands	3,46
8	Macedonia, FYR	59,08	65	Norway	3,24
9	Ukraine	57,84	66	Denmark	3,14
10	Zambia	57,58	67	Australia	2,76
11	Costa Rica	52	68	Canada	2,73
12	Venezuela, RB	51,19	69	Sweden	2,45
13	Slovak Republic	50,86	70	United States	2,32
14	Kazakhstan	45,91	71	United Kingdom	2,23
15	Ecuador	45,84	72	Singapore	1,77
				Average	19

As can be seen from the Table 5, stimulating role of natural resources in economic development of Russia is minimal (even role of natural resources in Russian budget formation is huge), while in India it is more than in two times higher. In general, BRICS

⁶ Maximal Index - 100% - means that country is developing only due to own financial potential

countries by importance of natural resources in own economic growth is closer to poor, but fastest growing economies.

The values of financial (saturation by capital) resources impact on countries' economic growth are shown in Table 6.

The data in Table 6 shows:

- highest role of financial factor in economic growth of developing countries, both with huge natural-resource potential (such Ukraine, Venezuela , Kazakhstan) or without it (such Uruguay, Armenia, Kyrgyzstan);

- high inverse correlation between the value of stimulation impact of financial potential and capital's saturation of the countries. It is noticeable that countries with high financial saturation have extremely low capital's impact on their economic growth.

On the one hand, this obviously proves an effect of declining economic value of capital. On the other hand, significant differences of economic efficiency of capital stimulate its trans-boundary movement (stimulated mainly by rich states);

- despite of extremely high demand for capital from developing countries, within all analyzed countries an average stimulating impact of financial factor is much lower than stimulating impact of natural- resources. This can be explained by high mobility of capital and by high concentration of capital in three global centers of capitalism with maintenance of extremely needs for capital in many developing countries.

Finally, Table 7 shows the performance of stimulating effect of the labor factor.

Table 7 – Impact of the labor factor on economic growth of the modern countries (leaders and outsiders), 2016
(Source: made by co-authors)

№	Leading countries	Index of stimulating impact of labor potential ⁷	№	Outsiders	Index of stimulating impact of labor potential
1	Norway	78,44	58	India	9,77
2	Australia	77,39	59	Ecuador	9,6
3	Canada	76,14	60	Sri Lanka	9,38
4	Finland	73,93	61	Bolivia	9,01
5	United States	73,39	62	Kenya	8,7
6	Sweden	72,71	63	Zambia	7,38
7	Iceland	72,27	64	Pakistan	7,36
8	Saudi Arabia	71,94	65	Georgia	7,1
9	Belgium	70,95	66	Vietnam	5,7
10	France	65,63	67	Paraguay	5,46
11	Netherlands	64,79	68	Ghana	5,44
12	Singapore	64,71	69	Armenia	2,63
13	Denmark	63,62	70	Uruguay	2,46
14	Japan	62,07	71	Bangladesh	2,39
15	Austria	58,4	72	Kyrgyz Republic	1,54
				Average index	22,4

⁷ Maximal Index - 100% - means that country is developing only due to own labor potential

Data in Table 7 shows a highest stimulate role of the labor factor mainly in developed countries of the West with high labor productivity and innovative, high technological structure of national economies, contributing a further growth of labor efficiency.

At the same time, economically under developed countries, including agrarian states of Africa, Asia and Latin America, are growing not due to their labor force potential.

Correlation between labor factor's stimulating role and national labor force potential (a number of employees in the national economic system⁸) confirms an independence of stimulate role of the labor factor on the countries' saturation by workforce.

So, China (country with largest labor potential) and Montenegro has almost similar criteria of stimulating economic value of labor. Consequently, an economic efficiency of labor does not reduce in countries with rich labor resources. An effect of declining economic efficiency of the labor factor does not demonstrate.

Solutions and Recommendations

Thus, analyzed three main factors for economic growth of the countries (natural-resource, capital and labor resources), we can conclude that modern states are greatly differ by degree of importance of each factor in their economic progress. It is interesting to note that a catalytic role of capital significantly reduces together with growth of capital-saturation of the states. At the same time, labor potential and natural resources potential retain their high stimulating role even with increasing of countries' saturation by them.

An analysis of macroeconomic indicators of the modern states also allows making several conclusions:

- Extremely high positive correlation (0.88) between stimulating role of labor factor with GDP per capita in the modern states. At the same time there are almost identical negative correlations between the stimulating role of natural resources and financial factors with GDP per capita in the modern states (-0.47 and -0.49 respectively).

This statistical finding directly confirms an important economic transformation – an economic growth of the country has increasingly provided not by natural and financial resources (including borrowed ones) but by productivity and quality of the labor force (both own and borrowed from abroad).

Allowing a possibility of feedback (a reducing of the role of high-skilled labor in economic growth determines simplification of national economy and its further impoverishment) we can make an extremely important finding for countries that actively attract low-skilled labor (including Russia, UAE, and Thailand).

Qualitative economic progress of the country due to involvement of unskilled workers is impossible in the long term! With a growth of number of arriving migrants national economic progress continues to be provided only by financial and natural resources of the countries. In conditions of rapidly decreasing of stimulating effectiveness of capital, as well as limited natural resources potential of the country, this strategy has a dead end, is unable to change country's positioning in the structure of international division of labor, can't guaranty discovery and development of new resources for economic growth.

⁸ Correlation between indexes of labor potential's stimulating impact and number of employed population is - 0,08

- taking in account a specific of macroeconomic indicators of the countries of global avant-garde, a negative correlation between stimulating role of the labor factor and dynamics of economic growth of modern states (-0.42) seems logic. Meanwhile a correlation between economic role of natural potential and financial resources and dynamics of economic growth in the world is a positive (0.31 and 0.19 respectively). It can be concluded that states are growing fastest due to their natural resource potential (high economic dynamics is traditionally peculiar for developing countries). While an importance of the labor factor is more typical for countries with low dynamics of economic progress (usually developed ones).

- finally , analyzed a correlation between indicators of stimulating roles of three factors for economic development and indexes of international migration in the modern countries, we can determine that the maximum positive correlation is between a stimulating role of the labor factor and dynamics of international migration (0.51). At the same time relationship between economic role of natural-resources and financial factor and dynamics of international migration is negative and relatively low (-0.33 and -0.18 respectively) .

These results suggest that countries developing mostly due to natural or financial resources now practically do not attract foreign workers, or even supply workers on the global labor market. At the same time, countries with high labor productivity, with a great stimulating effect of labor on their own economic growth are the main global receptors of migrants.

This result leads to the definition of main problems of the contemporary world labor market functioning.

Global migrant workers' receptors traditionally have limited capacity for own economic growth (often dynamics of their economic growth is timely less than dynamics of migration flows' increasing). In these conditions, the national systems of these countries are required to increase labor productivity as the most important factor and stimulator of economic growth (as was proved a stimulating effect of natural-resource and financial potentials in economic growth in these countries is insignificant).

In this connection, economic success of these countries will depend on the performance of two important conditions:

- The effectiveness of measures to ensure an influx of highly skilled professionals that are capable to positive impact on growth of labor productivity in the country later (for example, carriers of education, skills, abilities, technologies, and so on);

- The effectiveness of tools to ensure a greater concentration of local population on increasing of their own educational and professional level (with the further application of these skills in productive activities) by providing unskilled jobs to foreign migrants.

A presence of two directions of National migration policy of the modern developed countries permits a presence of international migration both of high-skilled and unskilled workers. And it requires defining of differentiated effective migration policies within an offered model from every state.

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