

The Influence of International Financial Institutions on the Development of the Road Sector in Developing Countries

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Abstract: In developing countries, the lack of motorways is one of the constraint development factors. This appears as the high transport costs of the public and private sectors. Therefore, the loans of international financial institutions of development institutions became the common practice along with the traditional tools of investment policy in the road sector. In this study, the operations of five of these institutions in the road sector of developing countries over the last twenty years have been analyzed as well as the reasons and possible consequences of external borrowings. The general trends of investment policy of developing countries in the regional perspective and close relationship between the total extension of the road network and its contribution to development institutions have been demonstrated. The activation of stabilizing actions of banks during post-crisis period has been shown. We have concluded that the length of automobile roads in the countries with low and average level of national income per capita has increased by one third and the availability of the roads is 4 times lower than demographic changes.

Key words: International financial institutions • Developing countries • Regional road network

INTRODUCTION

Absence and extremely low development of transport infrastructure, especially motorways is one of the important constraints for economic development of the countries with low and medium levels of national income. This factor appears as the inability of the road network to influence the market space, i.e. meet the “network properties” [1] and the presence of side effects [2], which are determined by transport costs in the production of goods and services in the public and private sectors.

To overcome these obstacles, the governments use the traditional instruments of investment policy, such as the budget investments, creation of special funds, the implementation of various mechanisms of governmental-private partnerships and government loans of international financial institutions.

The favorable institutional environment (regulatory, cognitive and regulatory support) is an important state asset and an essential attribute for more efficient and rational allocation of the state resources. Thus, the developing countries characterize by the processes of building and modernization of the national economies and

reforms of the institutional system that results in the deficit of investments into socially significant sectors of the economy, in particular into the road sector.

One of the conventional tools of qualitative transformations of the public sector is the governmental loans of international development institutions, which contribute to positive economic transformations. This statement is contradictory in terms of harmonization of the balance of interests (Table 1) and entails in the future possible adverse macroeconomic consequences.

Cardoso F. and Dornbush R. showed that the total economic impact of foreign investment will be greater, the lower a ratio of constant capital to variable (labor force of a country) [3]. This definition means that the similar volume investments into different countries will have different effect on economic growth.

At the same time, E. Borensztein with colleagues studying the questions of technology transfer associated with the foreign investments have found that technological transfer creates an additional effect and attracts larger local investments than foreign [4]. Their empirical studies have shown that the economic effect of foreign investments depends on a country's

Table 1: The total effect of different types of financial aid [5]

Type of aid	Substantiation	General macroeconomic effects	Possible adverse macroeconomic consequences
Financial project	Investments and rehabilitation	High production capacity (improvement of living conditions)	Implementation of wittingly unprofitable projects; distortion of costs
Program of import support	Increase of production capacities	Higher production capacity, increased availability of goods	Low efficiency of import support program
Debt relief	Reduction of the debt burden	Increase of import and investments	Adverse impact of political influence
Support to the budget	Temporary mitigation of governmental restrictions	High governmental expenditures and the reduction of inflation	Distortion of governmental expenditures
Additional funds	Reduction of budget constraints	Reducing the state budget deficit, redirection of state expenditures on priority sectors	High inflation
Food aid	Food security and support of the agriculture development	Growth of labor efficiency and productivity	Adverse incentives
Technical aid	Knowledge and innovation transfer, human capital development	Increase of the production efficiency	Distortion of the labor market; skill drain
Stimulation of the development of a favorable institutional environment*	Creation of favorable institutional environment	Improving the efficiency of market mechanisms and reduction of uncertainty of internal policy	Denial or delay of institutional reforms
Stimulation of "green" development**	Maintenance of the environmental balance	Compliance with environmental standards	Environmental disbalance caused by irrational behavior of the debtor

Note: *, ** author's interpretation.

ability to perceive the new technologies, that is, depends on a human capital with high degree. The dependence of economic development on the technological susceptibility is extremely strong and the foreign investments may result in the minimum economic effect at low levels of human capital.

Use of investments of international financial institutions over last 50 years is the evidence of increasing demand for these services. For example, the International Bank for reconstruction and development has invested more than 30 billion USD in the transport sector for implementation of 624 projects from 1995 to 2005 [6]. Since 1966, the Asian Development Bank has financed the construction of more than 87 thousand km of motorways that is equivalent to 17% of the relative growth of the Asian automobile network [7].

Despite of the intensive study of the investment policy implementation of each development institution, the evaluation of the overall contribution of international financial institutions into the development of the road network in developing countries is not sufficiently disclosed. In this regard, the general objective of this study was an assessment of the total contribution of international financial institutions into the development of the regional road network in developing countries over the last twenty years.

This study is strived for two complementary conclusions. First, it updates and extends the understanding of the general tendencies of the investment policy of international financial institutions in

the road sector for the governments, which are faced the choice of attracting of foreign loans. Secondly, the evaluation of the extension of the regional road network using the international financial institutions will show the degree of governmental commitment.

Research Methodology and Data Sources: To analyze the impact of investment policies of international financial institutions on extension of the road network, we used the methods of descriptive statistics based on the content analysis data of the supporting documentation of 1110 investment projects implemented in the period from 1991 to 2011 in 125 countries of the world and statistical information about length of the road network of studied countries.

Data Sources: Statistical information collection includes the following components: country, ID number of a project (for the World Bank and the Asian Development Bank), project name, reconstruction type of the road network (construction, reconstruction, or improvement), total project costs, start and completion dates.

The following information resources were used as the information base: Asian Development Bank; the European Bank for Reconstruction and Development, Islamic Development Bank, Japan International Cooperation Agency and the World Bank. Due to the peculiarities of the information resources of development institutions and the access degree to documents, the methodology of data sampling were individual (Table 2).

Table 2: Methodology of data sampling for compilation of statistical array

International financial institution	Method of selection of the required information
Asian Development Bank [8]	Access to executive documentation on the motorway infrastructure projects in the information database is limited by 1997. The sampling until 1997 was carried out using the annual reports of the Asian Development Bank.
European Bank for Reconstruction and Development [9]	There is lack of executive documentation on investment projects in the public assess. The information resource provides only a list of projects with cost properties. Therefore, the quantitative indicators were selected from the text of the news reports of the Bank, as well as the open sources in Internet.
Islamic Development Bank [10]	There is lack of executive documentation on investment projects in the public assess. The information was selected using the annual reports of the Bank since 1999.
Japan International Cooperation Agency [11]	The information was selected using the final project reports.
The World Bank [12]	The information was selected using the final project reports.

Statistical information on the growth of the road network and its qualitative characteristics was found in the annual statistical data collections of the International Road Federation for the same period.

RESULTS AND DISCUSSION

General Trends of Investment Policy of International Financial Institutions in the Road Sector: Twenty-year period of active investment policy of the five development institutions has contributed to the implementation of 1110 projects with total investment volume – 153,44 billion USD (Table 3). About 500.000 km of road network in developing countries were built and reconstructed. During this time, 27,5 thousand km of new roads were built, 190,4 thousand km reconstructed and 240,3 thousand km of road network were paved.

The data show a gradual increase of investment volumes over last five years by 3,3 times in nominal terms over the same period. Maintenance of progressive financing by IFIs shows the growing demand for long-term governmental loans (Fig. 1).

The extreme values of the second and final five-year review period indicate an increase of the nominal length of the road network reconstruction in 1997 and 2010 that occurred in crisis period of the world economy (Fig. 2). In these conditions, the banks have increased the volume of loans to support the development policies by 3 times.

This large-scale funding enabled the developing countries to avoid the cost reduction directed to support of low-income people [13]. This action was supported by a general postulate of Keynesian theory, which says that the governments should support the composite demand in the economy by replacing the losses of demand in private sector by governmental expenditures during economic recession. This creates a multiplier effect that generates revenue and stimulates further growth of employment.

Traditionally, the World Bank group is leader in the sector of the international investments (Fig. 3). These account 60,9 billion USD and half of these funds are invested over last six years. The ¼ of overall investments belongs to Asian Development Bank.

Considering the institutions of development and using the indicators of the extension of the reconstructed road network, we can conclude that more than 70% of total investments belong to the World Bank and approximately 15% to the Asian Development Bank.

Regional distribution of investments shows that approximately 60% of international financial investments are concentrated in the Asian region and further (by relevance) in Africa, Latin America, Europe and Central Asia and the Caucasus. The borrowed capital is less represented in the Middle East countries and Oceania (Table 4).

Table 3: Total data on volume of investments and the results of international financial institutions (IFI) and activities results of IFI from 1991 to 2011 in the road sector

Time period	Total volume of project funding, in billion USD	The volume of co-financing from IFIs, in billion USD	Number of implemented projects	The length of the reconstructed road network, in thousand km	
				total	IFI
1990–1995	26,9	16,94	187	36,49	15,4
1996–2000	32,15	21,01	210	144,85	68,01
2001–2005	29,61	22,01	243	97,17	49,82
2006–2011	64,78	56,04	470	178,84	68,71
Total	153,45	116,0	1110	457,36	201,96

Table 4: The specific distribution of investments within the regional range, %

Region	The part of total investments	According to the parts in total IFIs				
		WB	ADB	EBRD	JICA	IDB
Africa	13,6	82	–	–	9	9
Central Asia and Caucasian	6,6	68	13	8	6	5
East Asia	14,5	52	38	–	10	–
Europe	7,5	55	–	40	2	3
Latin America and the Caribbean	11,6	94	–	–	6	–
Middle East	1,5	61	–	–	16	23
Oceania	0,4	74	–	–	26	–
South Asia	21,5	63	25	–	11	1
Southeast Asia	22,8	48	18	–	33	1

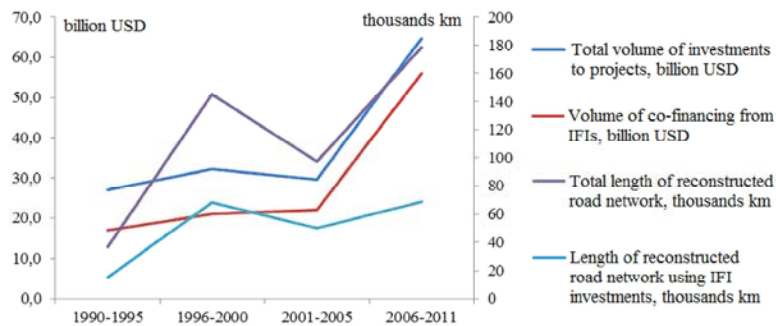


Fig. 1: The dynamics of total financing of the IFIs and reconstructed road network in developing countries

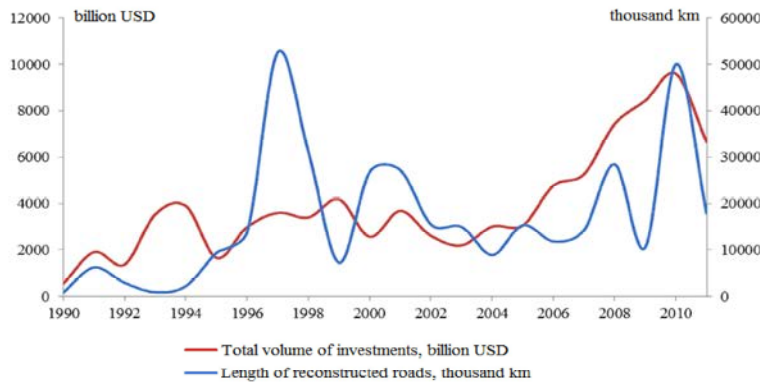


Fig. 2: Dynamics of the total volume of investments and the length of reconstructed roads

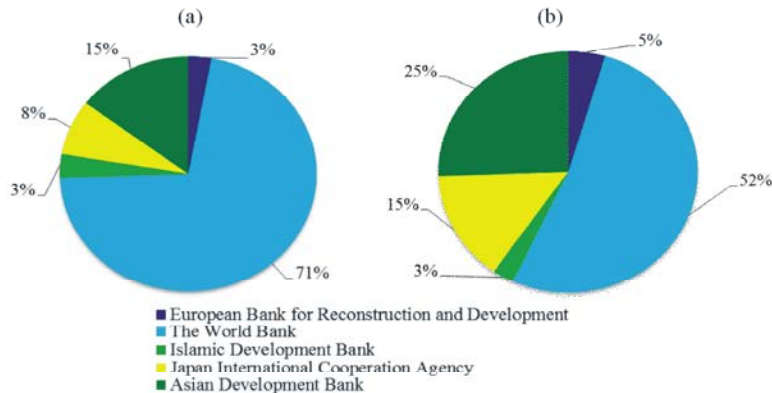


Fig. 3: The specific distribution of the results of the activities of IFIs in the road sector, %: (a) by the reconstructed road networks, (b) by the volume of investments.

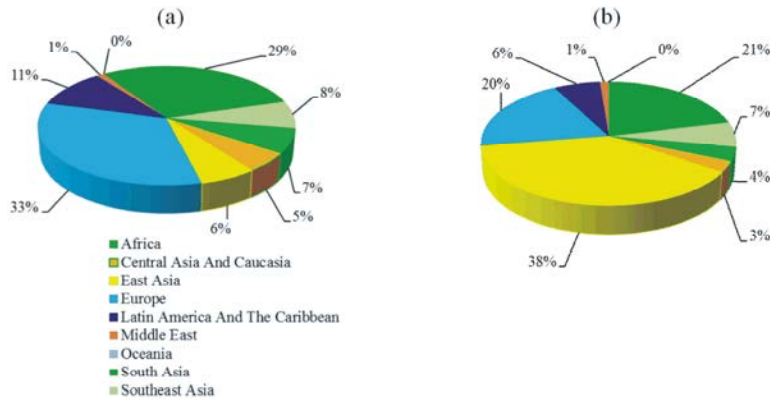


Fig. 4: The regional distribution of the road network. For 1991 (a) and for 2010 (b)

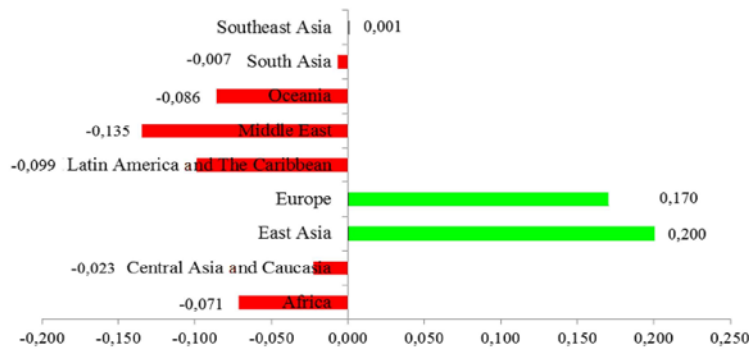


Fig. 5: The difference in development of road networks per 10 thousand inhabitants between 1991 and 2010, km/per 10 000 inhabitants.

The Asia-Pacific region is attractive for investors due to several objective reasons. Attempts to maintain the 6% real economic growth over last decade and the increase of global exports from 16% in the 80s to 27% in our days [14] have stipulated the higher demand in the developed infrastructure and especially in high-quality roads. Usually, the scope of activities of the regional banks is focused on the appropriate territories and widely represented in the countries of Central Asia and the Caucasus.

Analysis of the Growth of the Regional Road Network: Over two decades, the length of automobile motorways in the countries with low and medium national income per capita has increased by one third and reached 5,8 million km, 86% of which were paved. The most significant changes, approximately 68% of the total increase in the road network, appeared in East and South Asia (Fig. 4).

However, despite of the positive dynamics, the actions of the governments in the road sector remain behind of demographic changes. At the 37% increase of the residents, the total availability of roads increased only by 7% and reduced in most regions (Fig. 5).

The essence of the empirical research to prove a direct relationship between infrastructure development and poverty level [15] is that each 1% of increase of road kilometers per capita increases the consumption of households by 0,08%. Thus, only European and Asia-Pacific countries could support the 4-fold economic growth.

Analyzing the results of the applied investment policy of international financial institutions and the growth of the road network, we have concluded that the success in East Asia and Europe depends on the activities of considered banks in a small degree (Fig. 6).

The total contribution of five development institutions into the paved road is 3,4% and 4,1%. The bank investments in the countries of Africa, Latin America and Southeast Asia are represented approximately by 8%. It is important that institutions mainly invest into the road works related to reconstruction of dirt roads (Pavement). This is confirmed by increase of the motorways with hard coating in Africa by 58,6%.

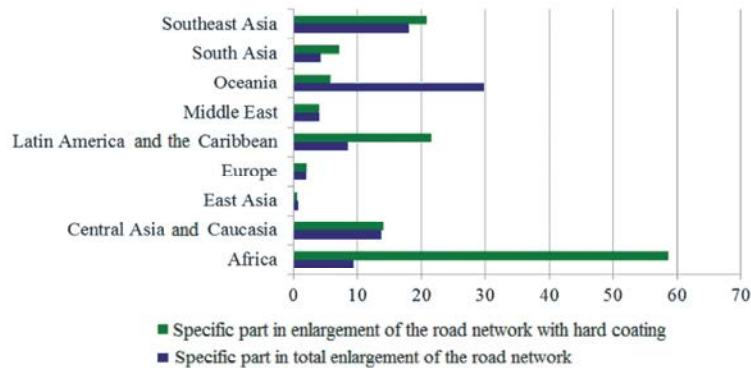


Fig. 6: The average growth of the road network as the result of investments of the international development institutions, %

CONCLUSIONS

As the study results, we have formed a concept on the activities of international financial institutions in the road sector and concluded that:

- Twenty-year period of active investment policy of the five development institutions contributed to the implementation of the 1110 projects with total volume of investments – 153,44 billion USD. The 27,5 thousand km of new roads were built, 190,4 thousand km reconstructed and 240,3 thousand km of road network were paved;
- The banks have increased the volumes of loans to support the development policy by 3 times within the framework of anti-crisis measures of 1997 and 2007;
- In this sector of the international crediting, the World Bank group is leader with the volume of investments – 60,9 billion USD (a half of these funds were invested over the past six years);
- Regional distribution of investments shows that about 60% of investments of international financial institutions are concentrated in the Asian region;
- The length of motorways in the countries with low and average national income per capita has increased by one third (5,8 million km, 86% of which were paved);
- The 37% increase of the inhabitants entails only by 7% increase of the motorway infrastructure;
- Total contribution of five development institutes into extension of the paved road network ranged from 3,4% to 4.1%.

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