REGIONAL ECONOMIES

THE INFLUENCE OF GEOGRAPHIC FACTORS ON ECONOMIC DEVELOPMENT

Ashot MARKOSIAN

D.Sc. (Econ.), Professor,
Deputy Head of the Department of
State Property Management under the Government of
the Republic of Armenia
(Erevan, Armenia)

Makar PETROSIAN

Ph.D. (Econ.), Executive Director of
the MAP Joint-Stock Company
(Erevan, Armenia)

Introduction

There are many studies that show how a country's production capacity greatly depends on its geographical location. Most economic production indices are characterized by a simple regressive dependence in production volume density (GDP per 1 sq. km) on geographic variables (average annual temperature, average annual amount of precipitation, altitude above sea level, ruggedness of landscape, soil categories, access to the sea, etc.).

Does this mean that geographic factors are determining the fate of a country's development? If so, to what extent? If not, what measures should be taken to ensure long-term economic growth? We will try to shed light on these and other issues in this article.

Geographically Isolated Countries and Their Common Problems

It goes without saying that a country's development strongly depends on its geographic location and natural specifics. For example, countries where agriculture thrives due to favorable natural and climatic conditions are able to produce surpluses that can be used to expand other spheres of activity (for example, farm produce can be used to obtain fuel), as well as for export, which consequently draws money into the economy.

Geographically isolated countries can be divided into two groups—"landlocked countries" and "island countries."

There are 43 states today that do not have access to the World Ocean. Most of these countries are situated in Africa (15) and in Europe (14 states and 2 partially recognized countries); there are also 12 such states in Asia and two in South America.

Two of these states, Uzbekistan and Lichtenstein, border exclusively on landlocked countries. There are also states that are entirely surrounded by the territory of another country: San Marino and the Vatican by Italy and Lesotho by the Republic of South Africa.

Ethiopia, with its approximately 80 million residents, is the largest landlocked state in terms of population; it is followed by Uganda (31 million), Nepal (28 million), and Uzbekistan (27 million).

Kazakhstan, Mongolia, Chad, Niger, Ethiopia, and Bolivia are the largest landlocked states in terms of territory.

Being landlocked could create an island effect which prevents these countries from enjoying the benefits of cooperation with suppliers and the markets of neighboring countries. Small remote islands that essentially do not have access to dry land experience this same kind of isolation.

Geographically isolated countries have much higher export and import transportation costs, energy outlays, spending to meet current needs and, consequently, many other expenses. This is often associated with their low level of economic diversification (specialization on only a few types of products) and migration of the highly qualified workforce.

Landlocked countries need real access to markets in order to develop, but this is prevented by the constant escalation of customs and transit fees. Retention of tariff peaks is greatly hindering export diversification and more intensive product processing. Moreover, it is very important for landlocked countries to establish duty-free and non-quota procedures for exporting their goods. However, achieving greater access to markets could be reduced to naught by non-tariff regulation measures that are mainly of an institutional nature. So realistic, flexible, and simplified rules for registering the origin of goods must be introduced that correspond to the production potential of landlocked countries.

The landlocked countries themselves should take responsibility for developing efficient transit transport systems. International organizations can only render assistance and consulting services in transit transport organization and trade procedure simplification issues, as well as regularly assess the course of events at the regional and subregional levels.

Economic Losses from Conflicts and Territorial Disputes

The impenetrability of borders is leading to a decline in economic growth. But full political mutual understanding among countries will not necessarily promote an improvement in economic indices.

Despite the positive effect generated by expanding their total economic space, the full unification of two countries might lead to a slowdown in trade development with the rest of the world. On the other hand, the merging of neighboring markets without political integration will only lead to a small acceleration in economic growth.

In the event of interstate contradictions or domestic conflicts, borders will cause a significant cutback in revenue. The damage might be significant even if the conflict is not an armed one. Territorial disputes will entail high international transaction outlays caused by the lack of protection of property rights, uncoordinated actions, non-transparent procedures, and legal and political ambiguity that influences the behavior of economic entities.

If, on the other hand, the conflict escalates into a military confrontation, the outlays and losses will significantly grow. And we are talking here not only about human lives, but also economic detriment. The average statistical losses a particular country suffers from a civil war amount to approximately $64 billion a year, while the world as a whole will undergo a $100-billion setback. These figures are much higher than the budget of international assistance programs.

According to experts, a civil war in one country reduces the annual economic growth index in the country next to it by approximately 0.5%. In particular, neighboring countries end up having to increase their military expenses by 2%.[1] The situation is aggravated even more by the appearance of refugees and the breakdown in operation of the main trade routes. Any conflict takes a toll on both sides, causing a reduction in growth rates or an economic slump.

Principles Guiding the Intensity of Economic Activity

A study of world development trends makes it possible to formulate several main principles relating to economic geography:

1. As countries develop, their economic activity becomes more intense (whereby the most densely populated territories are found in developed countries). Urbanization rates dramatically increase in post-industrial economies.
2. There are fewer differences in prosperity level between rural and urban areas (as well as differences among city residents). But in some countries, this world trend is not clearly manifested.
3. Migration of the workforce toward urbanization centers and political conflict-free zones intensifies.
4. Neither urbanization rates, nor their relation to economic growth are in any way unprecedented. Present-day development is subordinated to guiding principles that at one time appeared in developed states experiencing a surge in the urban population. However, today, the number of migrants is much higher.

[1] See; *World Development Report 2009*: *Reshaping Economic Geography,* World Bank, Washington DC, 2009.

Efforts of the World Community to Overcome Unfavorable Geographic Conditions

Today, the World Bank, the United Nations, landlocked countries, and donor countries have joined efforts to overcome the trade, economic growth, and development obstacles that the least developed landlocked countries are encountering.

This process was launched in 2003 by adoption of the 10-Year Almaty Program of Action.[2] The program calls on countries to make transit transport regulation more transparent, simplify the border control regime, and improve administrative procedures. The document focuses particular attention on cooperation in developing efficient transit transport systems at the regional and subregional levels.

On 12-15 April, 2010, another meeting of representatives of landlocked countries was held in Ulan-Bator. It was attended by around 100 delegates from 12 landlocked states, as well as representatives of donor countries, partners, and international organizations.[3] The ministers and other high-ranking officials from Azerbaijan, Afghanistan, Armenia, Bhutan, Kazakhstan, Kyrgyzstan, Laos, Mongolia, Nepal, and Tajikistan who participated in the event discussed ways to put the Almaty Program of Action into practice.

Transportation Costs and Product Prices

Many countries are adversely affected by the recent inflation trends. But landlocked countries have taken the brunt of the rise in prices: they are encountering export problems and, consequently, a drop in trade volumes and economic growth rates. In neighboring coastal countries, the picture is slightly more favorable.

One of the most important components of food prices is the transport cost of commodities and, according to the current tradition, in many countries with a low level of income it is much higher than in industrially developed countries. Industrially developed countries are supported by economies of scale, while industrially undeveloped countries are plagued by unpredictable customs procedures.

The stability and predictability of deliveries is just as important for trade as rapid delivery of goods to their destination. Delays at the customs borders raise transportation costs and make the situation less predictable. This is just as serious as long delivery times.

In landlocked countries, this unpredictability forces companies to use more reliable, but expensive types of transport (for example, airplanes), or allow large stores of commodities to accumulate, sometimes for an entire year in advance.

Transportation costs are also growing for other reasons, one of which is the existence of freight shipment monopolies. The levying of an "assistance fee" in some transport corridors is also a serious problem. It is estimated that checkpoints on the roads raise transportation costs by 10%.

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[2] See: *New Issues and Trends at the Regional Level: Least Developed Countries, Landlocked Developing Countries and the Small Island Developing States*, Report of the Special Body on Least Developed and Landlocked Developing Countries on its sixth session, U.N., Economic and Social Council, 1-4 September, 2003, Bangkok.

[3] [http://www.world-russian.com/forum/680/18686].

Simplifying and rationalizing import-export procedures could lower the cost of commodity transportation, as well as consumer prices, thus helping to promote trade, economic growth, and an inflow of investments. But such changes are coming up against serious obstacles: the commodity transportation system is controlled by influential circles that are interested in retaining the status quo.

Reducing import duties could also help to simplify the existing system, but this is not an easy task: in landlocked countries, these receipts comprise a large share of state revenues.

Comparative Analysis of the Results of Economic Development in Coastal and Landlocked Countries

It is interesting to analyze certain economic development results in the two groups of countries: coastal and landlocked.

Luxembourg and Switzerland are often given as examples of successful countries in the second group, the economy and standard of living of which exceed the indices of many world countries. But their example is not indicative, since they are both located in the center of Europe and surrounded by developed states with which they have friendly relations. Moreover, they have not been subjected to economic or political upheavals in the past few centuries, which cannot be said of most countries in this group in other parts of the world. European landlocked countries are extremely integrated into their surrounding space, and participation in international specialization has made it possible for them to gain the maximum advantages. In addition, the high consumer capability of neighboring countries and the common European market provide solutions to all the problems associated with the export of goods and services.

We took the mean values of selected indices for each of them (per country) in order to carry out a comparative analysis of the main economic indices of the two groups of countries, which makes it possible to better correct the comparison errors.

Tables 1 and 2 present several development indices, as well as economic activity indices of the groups of countries being analyzed. It is worth noting that the index for the share of population between the ages of 0-14 in the second group of countries (see Table 1) exceeds the corresponding figure in the first (32.5% compared to 28.3%). This shows again that workers are migrating to countries with a more developed economic system.

Comparison of the articles of national income, in our opinion, does not require extra comment.

The estimated data of Table 2 make it possible to assert that the average size of GDP in the first group of countries is 37-fold higher than the average index estimated for the second. We also think that the foreign trade balance index is the most characteristic, which amounted to 10.3% with respect to GDP in the first group of countries in 2007, while it was 2.7% in the second.

Thirty-one of the landlocked developing countries in the world are not attractive enough for foreign direct investments (FDI): in addition to structural shortcomings, their unfavorable geographic location also has a negative effect on their economic development. Admittedly, corresponding reforms and liberalization of the investment regime, as well as the favorable global economic conditions between 2000 and 2008, have led to a steady rise in the investment inflow

Table 1

Some Indices of the Development of Coastal and Landlocked Countries (per country)

Indices		Year	Access to Sea: Does not have access	Access to Sea: Has access	For Reference: Average value for all countries of the world	For Reference: Ratio of indices (%)
1		2	3	4	5	6 (4/3)
Population	Size, million people	2007	12.7	60.5	36.6	476.4
	Average annual growth, %	2000-2007	1.5	1.5	1.5	100.0
	Density, people/sq. km	2007	103.6	225.1	164.4	217.3
Population age composition, ages of 0-14, %		2007	32.5	28.3	30.4	87.1
GNI	$ millions	2007	45.0	1 ,696.5	870.8	3 ,770.0
	Per capita, $ millions	2007	5 ,225.2	10 ,626.3	7 ,925.8	203.4
PPP GNI	Absolute amount, $ millions	2007	59.6	2 ,385.4	1 ,222.5	4 ,002.3
	Per capita, $	2007	6 ,468.8	12 ,180.8	9 ,324.8	188.3
Average annual GDP per capita, %		2006-2007	3.8	4.3	4.1	113.2
Life expectancy at birth, years	Male	2006	57.8	65.9	61.9	114.0
	Female	2006	62.2	70.8	66.5	113.8
Adult literacy rate, %		2005	36.0	56.4	46.2	156.7

Source: The table was compiled on the basis of data presented in *World Development Report 2009*: *Reshaping Economic Geography,* pp. 352-353.

Table 2

Some Indices of the Economic Activity of Coastal and Landlocked Countries (per country)

Indices		Year	Access to Sea: Does not have access	Access to Sea: Has access	For Reference: Average value for all countries of the world	For Reference: Ratio of indices (%)
1		2	3	4	5	6 (4/3)
GDP	Gross amount, $ millions	2007	48,265.5	1,770,334.6	909,300.1	3,667.9
	Average annual growth, %	2000-2007	5.1	4.5	4.8	88.2
Labor productivity in agriculture	Value added per agricultural worker, $, 2000	1990-1992	1,703.3	4,244.0	2,973.7	249.2
		2003-2005	2,578.1	7,801.0	5,189.6	302.6
Value added, % of GDP	Agriculture	2007	21.0	11.1	16.1	52.9
	Industry	2007	25.7	28.6	27.2	111.3
	Services	2007	43.8	50.6	47.2	115.5
Household final consumption expenditure	% of GDP	2007	72.6	61.8	67.2	85.1
General government final consumption expenditure	% of GDP	2007	14.5	13.9	14.2	95.9
Gross capital formation	% of GDP	2007	23.2	22.7	23.0	97.8
External balance of goods and services	% of GDP	2007	–10.3	–2.7	–6.5	26.2
GDP implicit deflator, %	Average annual growth, %	2000-2003	15.5	6.4	11.0	41.3

Source: The table was compiled on the basis of data presented in *World Development Report 2009*: *Reshaping Economic Geography,* pp. 356-357.

into these countries, albeit at a much slower pace than in other developing countries (see Table 3). And the drop of 17% (to $22 billion) in FDI registered in 2009 was less abrupt than in the other countries of the world.

It should be noted that the production potential of landlocked countries is very weakly diversified. This is why FDI are concentrated primarily in the production sector of a few of those rich in natural resources. For example, in 2009, Kazakhstan alone accounted for 58% of the total amount of FDI in the developing landlocked countries.

As already noted, the data of Table 3 show that fewer investments are made in developing landlocked countries than in the least developed countries (2.0% compared to 2.5% in 2009). While the outflow of investments from developing landlocked countries amounted to 0.3% of the total world flows in 2009, compared to 0.1% in 2008. For the least developed countries, this index, on the contrary, dropped from 0.2% to 0.1%.

Table 3

FDI Flows by World Region in 2007-2009 ($ billions and %)

Region	Inflow of FDI			Outflow of FDI		
	2007	2008	2009	2007	2008	2009
All countries of the world	2,100	1,771	1,114	2,268	1,929	1,101
Developed countries	1,444	1,018	566	1,924	1,572	821
Developing countries	565	630	478	292	296	229
Africa	63	72	59	11	10	5
Latin America and the Caribbean	164	183	117	56	82	47
West Asia	78	90	68	47	38	23
South, East, and Southeast Asia	259	282	233	178	166	153
Southeast Europe and the CIS	91	123	70	52	61	51
Countries with a structurally weak, vulnerable, and small economy*	42.5	62.1	50.5	5.3	5.8	4.2
LDC	26	32	28	2	3	1
LLDC	16	26	22	4	2	3
SIDS	5	8	5	0	1	0
For reference: as a percentage of world flows of FDI						
Developed countries	68.8	57.5	50.8	84.8	81.5	74.5
Developing countries	26.9	35.6	42.9	12.9	15.4	20.8
Africa	3.0	4.1	5.3	0.5	0.5	0.5
Latin America and the Caribbean	7.8	10.3	10.5	2.5	4.3	4.3
West Asia	3.7	5.1	6.1	2.1	2.0	2.1

Table 3(continued)

Region	Inflow of FDI			Outflow of FDI		
	2007	2008	2009	2007	2008	2009
South, East, and Southeast Asia	12.3	15.9	20.9	7.9	8.6	13.9
Southeast Europe and the CIS	4.3	6.9	6.3	2.3	3.1	4.6
Countries with a structurally weak, vulnerable, and small economy*	2.0	3.5	4.5	0.2	0.3	0.4
LDS	1.2	1.8	2.5	0.1	0.2	0.1
LLDS	0.7	1.5	2.0	0.2	0.1	0.3
SIDS	0.3	0.4	0.4	0.0	0.0	0.0

* Without repeated calculation, since some countries belong to two of the three indicated groups.

Abbreviations: LDS —Least Developed Countries;
LLDS —Landlocked Developing Countries;
SIDS —Small Island Developing States.

Source: *UNCTAD: World Investment Report 2010: Investing in Low-Carbon Economy,* New York, Geneva, 2010.

In order to overcome the difficulties caused by their unfavorable geographic location, landlocked developing countries could concentrate on high-tech branches that rely least on the amounts of material resources imported, which are accompanied by high transportation costs. Incorporating landlocked countries into regional integration and increasing the volume of local markets would also make their economies more attractive for investors.[4]

The development of high-tech industries directly depends on the investment climate in the country, the effectiveness of the tax policy, and state support. Incorporating new technology and applying contemporary knowledge require more time than other branches of the economy; investment recoupment times are longer in this sphere. So such branches are more dependent on direct investments, including from the government.

Some Principles Guiding the Economic Development of the Republic of Armenia as the Result of Geographic Isolation

The Republic of Armenia (RA) is a country where, for several reasons (including its geographic isolation), the import of goods and services is much higher (in 2009 almost four-fold) than their ex-

[4] See: *World Investment Report 2010: Investing in Low-Carbon Economy*, the U.N., New-York and Geneva, 2010, pp. 18-19.

port, whereby in recent years this ratio has changed for the worse. Moreover, the "export volume to GDP" index has been constantly dropping over the past 15 years. This means that the RA has not been able to overcome the difficulties related to integration into the world economy (see Table 4).

Table 4

Dynamics of the Indices of Import and Export of Goods and Services, Net Export, Average Annual Exchange Rate, and GDP in the RA for 1995-2010

Years	Export	Import	Net export	Average annual rate of the Armenian dram to the dollar	GDP, $	GDP per capita, $
1995	299.5/23.3*	726.1/56.4*	–426.6/33.2*	405.9	1,286.7	395
1996	368.1/23.0	888.1/55.5	–520.0/32.5	413.4	1,599.3	492
1997	330.2/20.1	952.5/58.1	–622.3/38.0	490.8	1,638.9	506
1998	359.3/19.0	1 000.0/52.8	640.7/33.9	504.9	1,892.3	585
1999	383.1/20.8	919.1/49.8	–536.0/29.0	535.1	1,845.5	571
2000	446.9/23.4	966.2/50.5	–519.3/27.2	539.5	1,911.6	593
2001	539.6/25.1	977.6/45.4	–438.0/20.3	555.1	2,153.3	659
2002	697.6/29.4	1,107.1/46.6	–409.5/17.2	573.4	2,376.3	740
2003	903.5/32.2	1,405.9/50.1	–502.4/17.9	578.8	2,807.1	874
2004	984.9/27.5	1,513.6/42.3	–528.7/14.8	533.5	3,576.6	1,113
2005	1,336.6/27.3	1,983.8/40.5	–647.2/13.2	457.7	4,902.8	1,523
2006	1,407.6/22.0	2,328.5/36.5	–920.9/14.4	416.0	6,386.7	1,982
2007	1,152.3/12.5	3,267.8/35.5	–2,115.5/23.0	342.1	9,206.0	2,853
2008	1,057.2/9.1	4,426.1/38.0	–3,368.9/28.9	306.0	11,662.0	3,606
2009	710.4/10.8	3,321.1/38.9	–2,610.9/30.6	363.3	8,541.0	2,633
2010	1,011.4/10.8	3,782.9/40.3	–2,771.5/29.5	373.7	9,391.6	2,879
Total	11,988.0/16.8	29,566.4/41.5	–17,578.4/24.7	461.8	71,177.7	1,375.3

* In the numerator—$ millions, in the denominator—% of GDP.

Source: Data of the National Statistics Service of the Republic of Armenia.

Table 5 presents calculations that characterize the dynamics of the changes in the export, import, and GDP indices in the RA. The generalized coefficients calculated for specific periods of time make it possible to draw the following conclusions:

Table 5

Values of Average Annual Changes in GDP, Export and Import of Goods and Services, Net Export in the RA in 1995-2010

Indices	1995-2010		1995-2000		2001-2006		2007-2010	
	Average annual growth, %	In percentages per one-percent average annual GDP growth	Average annual growth, %	In percentages per one-percent average annual GDP growth	Average annual growth, %	In percentages per one-percent average annual GDP growth	Average annual growth, %	In percentages per one-percent average annual GDP growth
Change in GDP	**12.33**	**—**	**5.45**	**—**	**11.05**	**—**	**18.00**	**—**
Change in goods and services export volumes	**0.48**	**0.039**	**5.50**	**1.009**	**10.28**	**0.930**	**–5.60**	**–0.311**
Change in goods and services import volumes	**14.19**	**1.151**	**4.14**	**0.760**	**9.67**	**0.875**	**21.50**	**1.194**
Change in net export of goods and services	**–25.47**	**–2.066**	**2.98**	**0.547**	**8.74**	**0.791**	**–55.40**	**–3.078**

Source: Compiled on the basis of the data in Table 4.

1. The average annual increase in goods and services import volumes in the RA is higher than the average annual GDP growth.
2. The average annual increase in goods and services export volumes from the republic lags far behind the average annual GDP growth.
3. The average annual increase in goods and services net export volumes also lags far behind the average annual GDP growth.

The development of high technology, as well as of knowledge-based production, has been a priority of Armenian policy over the past few years. But there has not been a breakthrough in this sphere yet: the republic lags far behind the global trends in research funding, while the percentage of technology it exports is 9-fold lower than the average world level (see Table 6).

It should be noted that Kazakhstan, which is also a landlocked country, has demonstrated significant achievements in technology export.

Some of the steps the RA has taken show that it understands the indicated problems. In particular, the customs and tax services are being extensively reorganized, new management techniques are being introduced, and measures are being implemented to simplify border (customs) procedures, in-

Table 6

Development of Science and Technology in Some Countries of the World

Country	Scientific and Technical Journal Articles, 2005	Expenditures for R&D (% of GDP) in 2000-2006	High Technology Exports	
			$ millions, 2007	% of manufactured exports, 2007
Armenia	180	0.21	9	2
Azerbaijan	116	0.22	15	4
Belarus	490	0.68	346	3
Estonia	439	1.15	840	12
Georgia	145	0.18	39	7
Iran	2,635	0.59	375	6
Kazakhstan	96	0.28	1,470	23
Kyrgyzstan	—	0.20	8	2
Latvia	134	0.69	353	7
Lithuania	406	0.80	1 214	11
Moldova	89	—	14	5
Russian Federation	887	0.46	1 178	4
Tajikistan	—	0.10	—	—
Turkey	7,815	0.76	328	0
Turkmenistan	—	—	—	—
Ukraine	2,105	1.03	1,314	4
Uzbekistan	157	—	—	—
Germany	44,145	2.52	155,922	14
China	41,596	1.42	336,988	30
Malaysia	615	0.60	64,584	52
Republic of Korea	16,396	3.23	110,633	33
Singapore	3,609	2.39	105,549	46
Great Britain	45,572	1.80	63,066	19
U.S.	205,320	2.61	228,655	28
The whole world	708,086	2.30	1,807,189	18

Source: *World Development Indicators 2009*, World Bank, pp. 314—316.

troduce electronic reporting for economic entities, reduce transport document registration time, and so on. But all the problems can only be eradicated by a show of political will and actions aimed at overcoming the republic's transport isolation and eliminating the monopolies in some branches of its economy.

The ability of the least developed countries to make more efficient use of the opportunities to gain access to markets will be determined by national measures aimed at achieving international competitiveness of its products. This task is long-term and related to the resolution of complicated interdependent issues that cannot be regulated separately from each other.

Specific measures are needed to strengthen the country's capabilities based on developing physical and organizational infrastructure, intelligent use of human resources, ensuring unhindered and expanded access to markets, and correct application of corresponding political tools aimed at increasing the competitiveness of sectors that are of strategic significance for trade development.

Multilateral trade regulations and regional agreements should complement the integration efforts. Moreover, within the framework of these agreements, conditions should be envisaged that help the participating countries to adapt to more liberal and competitive trade regimes.

In Lieu of a Conclusion

The trade preferences established by international organizations for ensuring the competitiveness of isolated economies in the world markets encourage inefficient production; nor is the significant money transfer to assist the population of these countries of any help. In this case, the only acceptable strategy is to establish relations with a richer patron country, or, at least, prevent conflicts with neighboring countries.

Despite the fact that internal and external factors are having a strong impact on the economic development of countries, they cannot be considered definitive or insurmountable. Achievements and failures largely depend on the quality of the state machinery and on how efficiently it manages the economic processes.

Effective management of economic processes will make it possible to reduce to naught such negative factors as:

1. A conflict with a neighboring country.
2. The low quality of transport infrastructure.
3. Insufficient natural resources.
4. The high level of monopolization of the economy, in particular in export-oriented branches.

So streamlined state machinery is helping to overcome the consequences of geographical isolation, lower spending to a level that makes it possible to compete in goods and services export, create a favorable environment for business, offer economic freedoms, and establish competitive prices for purchasing property, with respect to which legal protection will be ensured.