AMERICAN UNIVERSITY OF ARMENIA

Master's Essay

"Landlockedness as a Challenge for Development: The Case of Armenia"

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Abstract

This research aims to find the main challenges of the landlocked states and identify how the landlockedness affects their development. In this regard, the study uses the following research tools: meta-analysis of the other researches, a two-stage regression analysis of data from World Bank, IMF and UN Datasets, semi-structured in-depth interviews and document analysis of agreements and strategy papers. The findings are grouped in two main parts. The first part discusses the overall development problems of landlocked states, while the second part of the research focuses on Armenia as a landlocked country. The first stage of the analysis shows that the landlockedness creates additional 1070 $ export cost per container. Besides, it identifies that the landlockedness affects country's development through the export cost by 5.8%. The second part of the research illustrates Armenia's specific characteristics as a landlocked state.

The research concludes that except for several developed landlocked states, their overall level of development is lower than that of the coastal neighbors. The hypothesis is approved because the landlockedness highly affects the export cost and decreases the HDI by 5.8%, which is 1/3 of the HID's standard deviation. However, the development related issues that Armenia faces are not primarily caused by its landlockedness.

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List of Abbreviations

FDI – Foreign Direct Investment

GDP – Gross Domestic Product

GNI – Gross National Income

HDI – Human Development Index

IMF – International Monetary Fund

LLC – Landlocked Countries

LLDC – Landlocked Developing Countries

PC – Per Capita

PPP – Purchasing power parity

UNCTAD – United Nations Conference on Trade And Development

UN-OHRLLS - United Nations Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States

USD – US Dollar

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Introduction

Even from the ancient times early civilizations were created near the seas or rivers. Since those days, sea transport is considered the cheapest means of transportation. There is no need for the construction of roads in the sea to transport from one place to another. This cheap transportation helps to transfer goods easily and with little cost. Transfer of goods or in other word, trade between the countries is the main indicator of the economic development.

Currently around 20% of the states do not have open access to the seas and are considered to be landlocked states. Few landlocked states succeed to overcome the difficulties caused by the fact of not having sea borders and being deprived of this cheap transportation mean. Particularly, these are the European landlocked states, which developed their cooperation with the coastal members and got an opportunity to use their territories as transit easily and steadily without any discrimination or obstacles.

A simple glance at the Human Development Index shows that the landlocked economies are mainly concentrated on the lower parts of the index. This suggests that the landlockedness creates specific challenges for the country's development. Here, a question remains open: how can the landlockedness affect the country's development?

Armenia is among these landlocked countries and faces specific challenges for economic development as well, and, in particular, for international trade, from which the country's economy is highly dependent. Poor natural resources and absence of alternative transit routes leaves the country with fewer opportunities to develop fully. As a landlocked state, Armenia has a bunch of problems, both specific to the country and general challenges that landlocked economies face.

Thus, the aim of the research is to find the answer to the above-mentioned question by finding the path of the impact of having no access to the sea on the country's development indicators, in particular, in this case on Human Development Index. There are numbers of works done in this topic, however, none of them tried to find the impact of being landlocked on the Human Development Index.

The first part of the study is the literature review and the methodological base of the research. This creates a theoretical background for the future analyses. Then, the landlockedness is discussed as a challenge for overall country's development followed by the econometric analysis of data from the World Bank database. This analysis helps to identify the direct influence of the landlockedness on Human Development Index.

In the next stage, the research concentrates on the case of Armenia as a landlocked country and discusses the special characteristics and hardships that the Republic of Armenia face during its economic development. A landlocked, small economy with closed borders with two neighbors and limited opportunities with the third neighbor creates special interest for the analysis. In this part, the study aims to reveal Armenia's economic performance as a landlocked country. By the in-depth interviews and the document analyses the study also aims to discuss the policy responses to the landlockedness in Armenia.

Literature Review

To get comprehensive understanding of the topic and to find what other researchers and theorists found about the impact of landlockedness in general and particularly on country's development, the research now concentrate on the existing literature about the landlocked economies. The analyzed literature showed that the researcher in all over the world have different viewpoints regarding the landlocked states. This section of the thesis brings up the main challenges and obstacles that were identified by others as a direct cause of landlockedness and the responses of the landlocked states to them.

As a first category of the problems of landlocked states the geographical conditions are mentioned in a group of researches. (Lahiri and Masjidi 2012, Bosker and Garretson 2006; Mengistu and Adams 2007). In particular, Lahiri and Masjidi (2012) illustrate in their study that state that the geographic shortcomings along with the relief and remoteness include climate conditions and make landlocked states' trade dependent on weather whim. They point out the difficulties during the winter period.

Glassner (1973) tries to compare the status of the landlocked states before 1965 and after. This was the year of the Convention on the Transit Trade of Landlocked States. This was a significant step-forward in this issue. Glassner refers to the sea as a "window on the world". He states that landlocked states have high transport costs for exporting and importing goods. Besides, he mentions the major difficulties for them such as mountainous terrain and dense forests, which significantly harm the infrastructural development. The latter is extremely important for LLCs. Moreover, he points out that the hardships concerning the topographic issues and poverty makes it very difficult to manage and maintain good roads and infrastructure.

Mengistu and Adams (2007) also illustrate the major difficulties that landlocked economies face when they try to connect to the international market. Faye et al. also discuss the geographic problems of landlocked states and highlight the remoteness from the seas and international markets. Referring to the post-soviet landlocked economies they mention that some of them are about three thousand kilometers far from the seaports. This results in time-consuming and costly trade for these countries.

Regarding the disadvantages of the landlocked states Gallup et al. (1999) mention the distance from the sea. They argue that the landlocked state is in worse conditions than the remote regions of coastal states, where the products or people have to pass longer distance to get to the seaports compared to the landlocked states, which have shorter distance from open seas. They explain this by bringing three main reasons: firstly, migration within the country and labor movements are much easier than migration between countries; secondly, the ease of infrastructure development compared to the hardships of the same across the national borders; and, finally, the coastal neighbors can charge landlocked state with certain costs for using their roads and ports to get access to the sea for political or other reasons.

However, concerning the issue of labor market, in his research Feldmann (2009) concludes that labor-market outcomes are not dependent on the distance of the country from the ocean. Although he states that different geographical positions have various impact on labor market.

In his study, Ricardo Hausmann (2001) argues that the country's geographic position and its advantages and disadvantages have been changed along the history. Particularly, they mention that previously, the countries that where in the center of several other states played significant role as a transit country and this was mainly identified as a priority for that country. However, with the development of maritime transportation this priority became a disadvantage for the central, non-coastal country. To put it another way, the geographical situation of the country remained the same, but the change of circumstances shifted the country's advantage into disadvantage.

High transit costs are another group of shortcomings that landlocked economies face. The researches showcase that the landlocked states have higher transit costs than their coastal neighbors (Limão and Venables 2001; Hummels 1998). High costs for transportation makes the products of the landlocked states expensive and less competitive in international markets. Lahiri and Masjidi calculated that the total transportation costs for landlocked states are 9% higher than for the coastal ones. As mentioned in the UNCTAD study (2013) the high transportation costs reduce the level of export of the country.

Discussing the importance of the roads and infrastructure in country's development Raballand and Machi (2009) mention that transportation costs and infrastructural difficulties hamper the development. Their research states that the transportation end-users not always benefit from the assistance to construct or repair roads. That is why they suggest the donors to take everything under their control to reach their goals. Arvis et al. (2010) and Hallaert et al. (2011) highlight the importance of the regulatory policy in transport issue in the LLC's trade and overall development.

Raballand (2003) used four indicators of being landlocked to identify the effect of landlockedness on trade. Firstly, he used a dummy variable to obtain data; second indicator measures the shortest distance to the nearest seaport; the third one identifies the number of the borders of maritime countries; and the last one deals with the number of the LLC's borders.

Raballand found that when measured by the dummy variable the landlockedness decreases the trade by about 80%. Then his further findings suggest that this mainly depends on the distance from the nearest markets, airports and seaports. Furthermore, it is important to take into account the number of borders and transportation alternatives of the LLCs.

Raballand et al. (2008) suggest that the infrastructural development works better when there is a regional cooperation and liberalization. This mainly effects the transit costs of the products in LLCs. Borchert et al. (2012) also mentions the importance of the regional and international cooperation. They also state that any investment and assistance in this sphere should be accompanied with national policies that should regulate the work and prepare good conditions for them. Lall et al. (2009) stress the importance of the competition between the transport services in the reduction of the transportation costs in landlocked states.

Maurice Schiff and Alan Winters (2002) talked about the issue of the cooperation and integration as well. Particularly, they state that regional cooperation can help to get equal and uninterrupted access to the public goods such as rivers, lakes, roads and infrastructure. However, not in all cases this can work, because the neighboring states should have amicable relations and do not create difficulties for each other.

The link between transportation costs and the infrastructure is discussed by Pomfret (2010). He states that for the landlocked country it is essential to have developed infrastructure, but it is not enough, because the trade mainly depends on the transit country. Therefore the infrastructure of the transit state also should be in good conditions. As regards the transportation system, Ndeffo et al. (2013) highlight the importance of the construction of new highways and railroads.

De (2006) states that an average landlocked state's transportation costs are higher by 55% than these for their maritime neighbors are. On the same issue Grigoriou (2007) argues that the development of good infrastructure of the neighboring transit country can stimulate the international trade of the LLCs by more than a half. Then the study suggests several ways to deal with the issue: infrastructural development, alternative roads and international cooperation and integration.

As regards the development of the country, Faye et al. (2004) state that landlockedness brings low level of development, but do not mention directly to what extent. Ramesh Paudel (2014) found that landlockedness negatively affects the economic growth. This research also concludes that the extent of this impact can vary because of the methods used for estimation. When trying to explain the differences that exist among the landlocked states regarding the economic growth the study states that different policy responses, openness of the economy, relations with neighbors and infrastructural development have their major impact and decide these differences.

Andrew Huelin (2013) links the development of the landlocked economies with their difficulties to get engaged in international trade. To somehow reduce this negative impact of landlockedness he recommends to develop private sector in the country and create better business atmosphere for them. The underdevelopment of the landlocked states is also discusses by Kelly Bird and Hall Hill (2010) in the case of Laos. They state that economic liberalization and effective policy changes and reforms can have a significant influence on reducing the impact of landlockedness and small economy which they called "initial condition".

In their study Gallup et al. (1999) argue that the landlocked states have lower GDP per capita compared with the coastal states. The prices of the products in landlocked states are much higher because of the transportation and other costs and therefore less competitive in the international market. According to their study, the LLCs do not attract foreign investors as their maritime neighbors. These hardships bring high unemployment rates in the country. MacKellar et al. (2000), analyzing the influence of the landlockedness on the country's economic stance, argue that the growth rates of the LLCs are 1.5% lower than these of their coastal neighbors.

Arvis et al. (2010) even went deep to calculate the cost penalty and time penalty of using transit states as corridors. Their estimations vary from 8% - 250% for the cost and 9% - 130% for time. Radelet and Sachs (1998) argue that insurance and transport costs are two times higher for LLCs in comparison with their coastal neighbors.

Rodrigo Cárcamo-Díaz (2004) studied the impact of the landlockedness on foreign direct investments in the country. They mention that in landlocked states the risks are higher therefore the investors are not attracted to make investments in those economies. High transportation costs and bad infrastructure are main reasons identified by the author as factors that pull back their intention to make investments. Like the study conducted by Pomfret (2010) this research also highlights the role of the neighboring transit states and points out that political and economic instability in neighboring states also have their decisive impact on investors' intentions.

Macroeconomic fluctuations of neighbors are discussed by Diaz too, and he argues that these instabilities are another factor that forces foreign investors "stay away" from landlocked economies. On the other hand, a research done by Arvis et al. (2010) argues that landlockedness does not have a decisive impact on the number of FDIs in the country. They particularly mention that there are significant number of investments in resource-rich countries despite being landlocked and remote from the seas.

The relations with the neighboring transit states are discussed by Faye et al. (2004), who mention that the instability and fluctuations in transit state's economy or in political life have their impact on landlocked country. They particularly mention the necessity of the creation of solid contractual base for the bilateral relations of these states. In case of strained relations with coastal neighbors, the economy of the landlocked state can highly suffer. Moreover, as an obstacle for the development of the landlocked economy the study mentions the existence of conflicts in the region, which also negatively affects the integration possibilities in the region.

The same issue is discussed in Glassner's research. Particularly, he states that the landlocked states are not only vulnerable to their internal fluctuations, but also they are highly dependent on the interior situation of their coastal neighbors.

Idan and Shaffer (2011) discussed the influence of the landlockedness on the foreign policy making of the Post-Soviet states. Particularly, they analyzed the cases of Kazakhstan, Uzbekistan and Azerbaijan. They found that these countries have multi-directional strategic orientation; they conduct specific policies towards their coastal neighbors; and do investments in these states. In the study they argue, that the coastal states in Post-Soviet territory could shift their orientation from Moscow to the West, while the landlocked ones maintained strong ties with Russia. Among these countries the ones who have oil resources could also find integration with other regional states. However, the others, who lack any oil or other natural resources, stay "loyal" to Moscow.

Sachs (1997) also argues that geography plays an important role in foreign policy. This research argues that landlocked states are restricted in their foreign policy options and have to reconsider their interests every time when some geopolitical changes occur in neighboring states. Then the research goes deep into describing main difficulties for landlocked states, which have already been discussed in this literature review. In his study, Edmund Dale (1968) even mentions a low level of national consciousness in landlocked states and summarizes that LLCs lack strength, homogeneity and cohesion.

Portugal-Perez et al. (2008) posits several ways to soften the impact of landlockedness on the economy. Particularly, she suggests treating them differently in accordance with their needs and necessity. Then she mentions the importance of the regional and international cooperation and the need of economic integrations. As another step to decrease the disadvantageous situation of the economy she highlights the significance of the infrastructural development and national certain policies regarding this issue. Surprisingly, she also suggests to booster uncontrolled cross-border trade. She stresses the importance of understanding the role of this black market and then try to come up with regulations.

As policy responses for these challenges and difficulties the literature suggests certain guidelines. In particular the literature stresses the importance of the creation of solid and working infrastructure systems (highways, railroads and pipelines). As another means of solving difficulties the literature suggests the landlocked states to get into the regional integration projects. Then the steps directed to the economic development and export encouragement are highlighted (UN-OHRLLS 2012; Shrestha, et al. 2003; Shrestha et al 2004).

Methodology and Design

Research Questions and Hypothesis

The analyzed literature gave a thorough understanding about the topic, which led to the formulation of the research questions and the hypothesis. The research questions to which this research is going to answer are following:

- Research Question 1: To what extent does the landlockedness affect country's development?
- Research Question 2: How does the landlockedness affect Armenia's development?
- Research Question 3: What are the policy responses to the landlockedness in Armenia?

The reviewed literature helped to formulate the hypothesis of the research, which is going to be discussed in the first part of the research. The hypothesis refers to the direct impact of the landlockedness to country's development. Thus, the hypothesis is:

H: High export costs, driven by landlockedness, negatively affect country's development.

Methodology

To answer to the abovementioned research questions and to approve or disapprove the hypothesis the research used mixed method. A sequential-qualitative design was used to get the needed results. First, the research went deep into the other researches and reports of the respective bodies to identify the exact consequences of being landlocked. For this meta-analysis of the research and policy papers was conducted. This prepared a theoretical background by deriving necessary variables for the future analyses.

In the next stage, which was a pure quantitative analysis, a huge dataset was created that contained data for all the countries for last ten years. The needed data were taken from the World Bank, IMF and UN Datasets. Besides, for several countries even the national statistical services' data were used. Then the averages for years 2004-2008 and 2009-2013 were used for the next analyses. A linear regression modeling was conducted to measure the direct impact of the landlockedness on the country's development. Here, besides the cross-country data a dummy variable was introduced, which marked landlockedness.

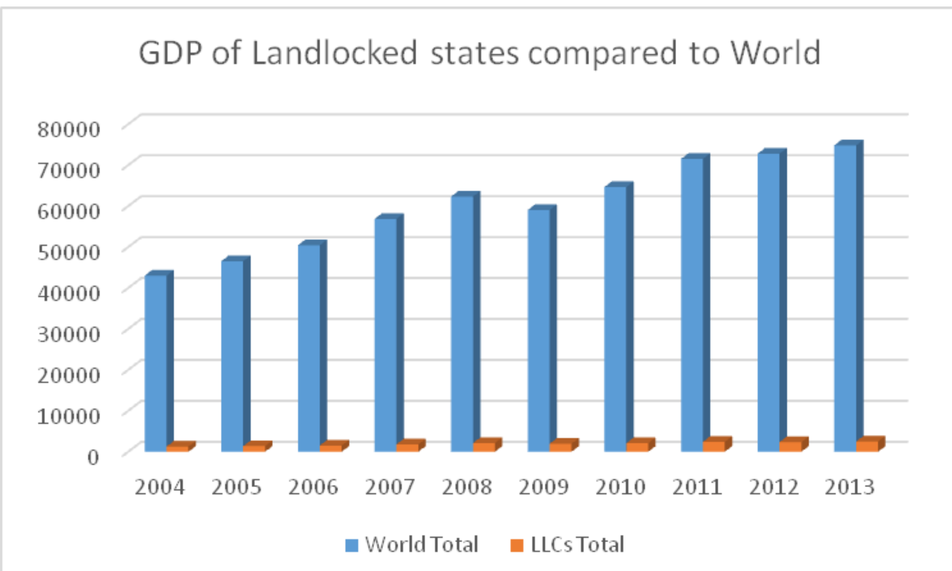
Then the economic indicators of Armenia have been compared with the averages of the developing countries, with the averages of the landlocked countries and with the world averages. To identify the policies that the government of Armenia conducts to decrease the impact of landlockedness the research did a document analysis of the strategy papers and other types of documents that deal with the economic policy of Armenia. To understand the main concepts and provisions on which the relations of Armenia and Georgia are based as a transit providing country for Armenia research also analyzed the agreements signed by these two countries.

To fill the gaps, in-depth semi-structured interviews were conducted with eight economists and policy-makers to find their interpretation of the data on Armenia's economic development as a landlocked state. Particularly the interviews were held with the leading economists, senior lecturers and heads of the faculties and programs chairs in the field of economics of the three prominent universities in Armenia: American University of Armenia, Yerevan State University and Armenian State University of Economics. The interviews with the head of the Department of Economic Development Policy and member of the Economic Affairs Committee of the National Assembly of the Republic of Armenia also helped to find what kind of policies Armenia conducts to reduce the impact of landlockedness on the economic development.

By analyzing, reviewing, comparing and interpreting the necessary data the research answers to the aforementioned research questions. This helps to approve or disapprove the hypothesis of the research. The next section describes the variables that have been chosen through the meta-analysis of other researches that are dealing with the impact of landlockedness on the country's development.

Problems Faced by Landlocked States: General Overview

Although in 45 landlocked states live about 7% of the world population, and they comprise about 11% of the world area, only 3.22% of GDP goes to these countries (See Graph 1). As identified in the literature review the landlocked states face certain difficulties compared with their maritime neighbors in their development. In comparison with their coastal neighbors, they have lower economic performance. There is a huge gap between landlocked and non-landlocked countries, and it has an increasing tendency. A strong correlation between geography and development is obvious. LLCs suffer from their fate of being far from the sea and this isolation from international markets and economic centers creates obstacles for their successful development.



Graph 1: World average GDP for 2004-2013 and the proportion of the landlocked states. The data are given in billions. *Source: Author's calculations, based on the World Bank Datasets*

As identified in literature review landlockedness results in high transit costs, which make the exporting goods very expensive therefore less competitive in international market. The infrastructural problems and distance from the see, infrastructure of the transit state, geographical difficulties all these factors contribute to the high transit costs. This high costs reduce the trading level of the country. Besides, the landlocked states are less attractive for the foreigners to do investments, unless they are rich with oil or other natural resource.

As shown in the literature review landlockedness brings lower development and is considered a geographical burden for a state. However, there can be other specific reasons for country's bad performance. To find the impact of the landlockedness on the country's development and relatively to decrease the influence of other factors the research compares the average GDP Per Capita for 2004-2013 of landlocked states with the same of their maritime neighbors. To do this the states were grouped in 8 geographic groups (See the Appendix 1). These groups are conditional and were created just only for this case to compare the levels of development of neighboring states. This approach helps to compare the GDP Per Capita of the landlocked state directly with its maritime neighbors and to reduce variations in the development levels of states in different parts of the world. Table 1shows that in all cases, except for the Western and Northern Europe cluster, maritime states are doing well as compared to their landlocked neighbors.

Table 1: Average GDP Per Capita of the Landlocked and Maritime States divided by regions.
Source: Author's calculations, based on the World Bank Datasets.

Regions	**Average GDP Per Capita for 2004-2013**	**Regions**	**Average GDP Per Capita for 2004-2013**
Southern Africa		**Central and South Asia**	
Average of LLCs	4876	Average of LLC	6468
Average of maritime	7327	Average of maritime	13850
Western Africa		**Eastern and Central Europe**	
Average of LLCs	1383	Average of LLCs	15488
Average of maritime	5986	Average of maritime	16831
Eastern Africa		**Western and Northern Europe**	
Average of LLCs	1263	Average of LLCs	73409

Average of maritime	2269	Average of maritime	37407
South and Southeast Asia		**Latin America**	
Average of LLCs	4145	Average of LLCs	6208
Average of maritime	5832	Average of maritime	16489

A large number of landlocked states are situated in Africa and the comparison of their economic performance with their coastal neighbors shows that in Western Africa none of the landlocked states has higher GDP PC than the regional average. The situation is slightly better in Southern Africa, where Botswana and Swaziland have higher GDP Per Capita than regional average; however, the overall average for the LLCs is about 66% of the average of the maritime states in the region. In the Eastern Africa, the picture is the same as in Western: none of the landlocked states has higher GDP PC than the regional average.

Asian landlocked states are doing relatively better compared with the African ones. However, both in the Central and Southern and Southeastern Asia the average GDP Per Capita of the landlocked states is lower than the regional average. In this region the so called leaders of development within the landlocked states are Kazakhstan and Turkmenistan and this is because of the natural resources and particularly oil and gas in this countries, which attract the attention of the investors, thus reducing the geographical burden.

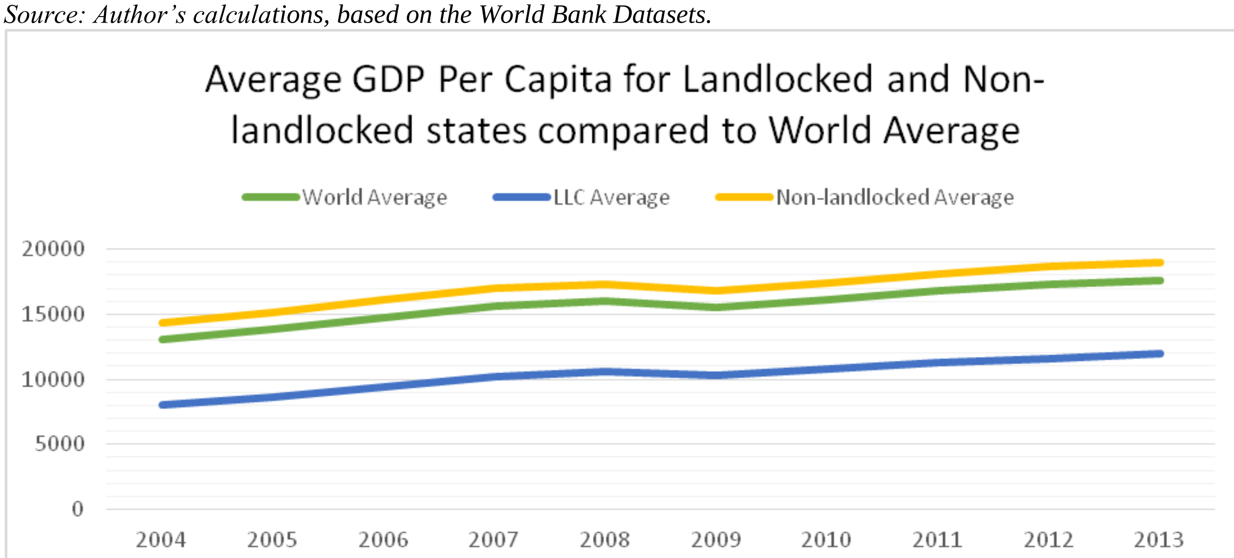
Concerning the performance of the LLCs in Central and Eastern Europe the table shows that the overall average is slightly lower than the regional average and this is because of the Czech Republic, Hungary and Slovak Republic, which are considered to have very high human development. The only case when the average of the GDP Per Capita of the landlocked states is higher than their neighbors’ is in Western and Northern Europe.

Last cluster that was analyzed is Latin America. Here the tendency is the same. The overall average of the GDP Per Capita of LLCs is lower than that of their maritime neighbors. Besides, none of the landlocked states has higher average than the regional average.

This analysis of the performance of the landlocked states shows that except for several developed landlocked states their overall level of economic development is lower than that of the coastal states. This shows that although there are some variations within the landlocked states, their indicators are generally lower than those of maritime ones are.

Graph 2 illustrates the trend of the GDP Per Capita for the World, LLCs and for non-landlocked countries for last ten years (from 2004 to 2013). It can be observed from the graph that the average for landlocked states for last ten years was always low from the world average.

Graph 2. The average GDP Per Capita for landlocked, non-landlocked states and the world average for 2004-2013. *Source: Author's calculations, based on the World Bank Datasets.*



A short glance at the Human Development Index shows that most of the landlocked states are in the groups of middle and low level development. To reduce the variations of the results and to provide the solid basis for the analysis the research took the average of the Human Development

Indices of 2004-2013. As it is shown in the Appendix 1 out of 48 countries that have very high human development, only eight countries are landlocked and these are the abovementioned European states that have higher GDP Per Capita. Only 6 out of 51 states that have high human development are landlocked (Armenia is among them). Within 40 countries that have medium human development, 10 are landlocked and the highest number of landlocked states are in the last part of the table, where the states that have low human development are; out of 48 states, 17 are landlocked.

Empirical Evidence

Defining Variables

So, what explains this underdevelopment? Does landlockedness have direct impact on country's HDI rank? To answer to these questions the research again goes back to the literature and highlights the major negatively influenced indicators by landlockedness. The meta-analysis helps to identify what are the major consequences of being landlocked.

Firstly, the researchers identify mainly the infrastructural problems, which result in high transportation cost and high cost for export. Sea transport has always been cheaper than air or land-transports. Several case studies and researches found that transportation problems that landlocked economies face hinder their development. Particularly, they harm the competitiveness of the products both imported and exported. High transportation costs make the products cost higher thus reducing competitiveness. However, some suggest that in landlocked states investments in infrastructural development is not sufficient to decrease the transportation costs (Raballand and Macchi 2009). As Lall et al. (2009) argues the internal market of the landlocked states should be changed and some regional common policies should be implemented to decrease the negative impact of landlockedness.

Landlocked states largely have all necessary requirements to have high costs for export and import. First, they are far from the international markets and this remoteness adds additional cost for exporting goods. Second, they use air and land transportation, which is more expensive compared to the sea-transportation. Venables and Limão (2001) went deep into the topic to compare the costs of land and sea transports. They found that sea transport is 7.3 times cheaper than land transport. Third, they lack sufficient infrastructure. As another condition for high transportation cost that should be mentioned is the additional borders that goods from landlocked country should cross to get to open sea.

All the above-mentioned difficulties make the trade of landlocked states costly; the exported and imported goods have higher cost, which harms their competitiveness significantly. This made another group of researchers to concentrate on the trade. The analysis of other researches shows that landlocked countries trade less compared with their maritime neighbors. Overall, they state that these all indicators result in lower GDP for landlocked state (Andrew Huelin 2013; Kelly Bird and Hall Hill 2010; Gallup et al. 1999; MacKellar et al. 2000). Irwin and Tervio (2002) calculated that LLCs' trade is 30% less than the trade in non-landlocked states.

The reviewed articles help to identify other hardships that landlocked economies face. The analysis of the researches done during last decade in different parts of the world helps to argue that landlocked countries are less attractive for the foreign investors (Pomfret 2010; Rodrigo Cárcamo-Díaz 2004). The main reason is also connected with high transit costs and infrastructural difficulties. Foreign direct investments are essential for the country's development. Especially in developing states, the national resources and savings are limited therefore there is a need for foreign money to be invested in the country.

Therefore, the distance from developed countries' markets, no direct access to the open sea, small-size national markets, not sufficient infrastructure and weak capacities are the main characteristics of the landlocked economies that discourage the investors to put their money in landlocked states. Consequently, the low level of FDIs in the country brings unemployment and several researches make this reference (Gallup et al. 1999; MacKellar et al. 2000).

Therefore, to explain the underdevelopment of the landlocked states the study now concentrates on the abovementioned indicators, particularly, on the average GNI per capita, PPP (current international $) for 2004-2008, average unemployment rate for 2004-2008, average FDI net inflows (% of GDP) for 2004-2008, and average cost to export (USD Per Container) for 2004-2008, average exports of goods and services (% of GDP) for 2004-2008. These are the main indicators that are going to be used to measure the impact of the landlockedness on country's development.

In this stage, the research identifies the main variables used in the further analyses and provides short description for them, before going ahead to the econometric analysis. The indicators were from the World Bank, IMF and UN databases. The GNI per capita, PPP (in current international $) is a gross national income per capita measured by the international dollar which has the same value in all countries as the US dollar in the United States. Unemployment rate is the proportion of the available labor force that is able to work and now looks for a job. Foreign Direct Investments Net Inflows (% of GDP) is the overall sum of reinvestment of earnings, equity capital, other long and short-term capitals divided by the GDP of the respective year. Cost to export (USD Per Container) represents the overall cost in US dollars for the 20-foot container including the documentation costs, administrative expenses for customs services, any broker fees, inland transportation and other costs that are officially registered for the export of a product. Exports of goods and services (% of GDP) is the overall share of the exported goods and services of the GDP of the respective year (World Bank 2015).

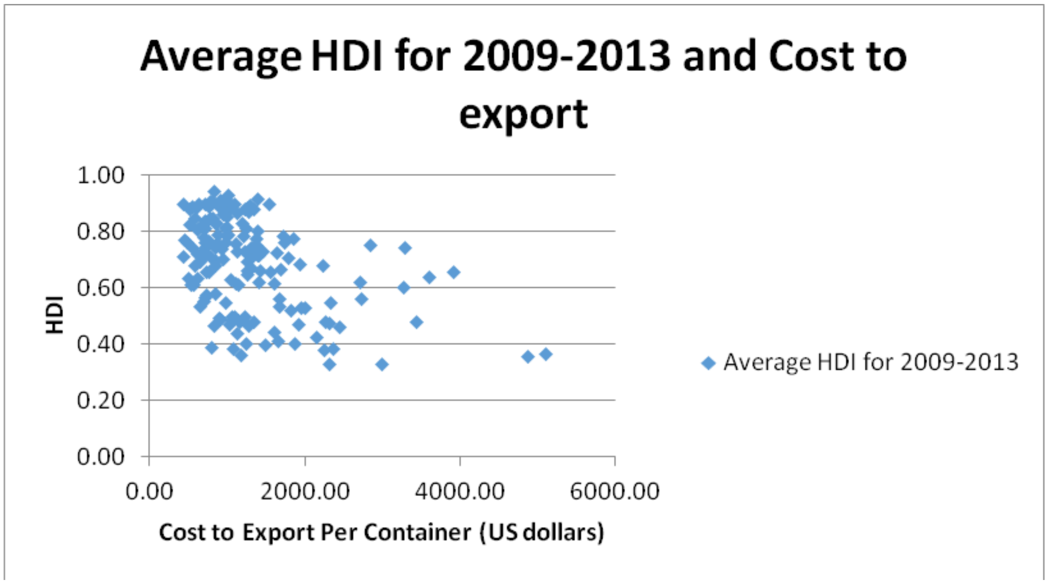
As an indicator of development, the research uses the Human Development Index, which has three components: life expectancy at birth (in years), mean years of schooling (in years), expected years of schooling (in years), and gross national income (GNI) per capita (Human Development Reports 2015). The HDI is a measure of overall social and economic development of the country and helps to illustrate the changes in development levels of the states.

Regression Analysis

To test our hypothesis and find answers to our research questions the research in this stage concentrates on the econometric analysis of the abovementioned variables. So, at the beginning the research hypothesized that high export costs, driven by landlockedness, negatively affect country's development. To approve or disapprove the hypothesis, firstly, the research tries to find what is the impact of the landlockedness on cost to export.

To reduce the impact of the exceptional years, the averages of five years have been taken. All the dependent variables are the averages for years from 2004 to 2008, and the independent variables are the averages for 2009-2013. This has been done to measure the impact of the independent variables on the dependent variable, as the impact can been seen after some period of time.

When just trying to measure the impact of the cost to export on Human Development Index, the picture explains a little about their relationship. The Graph 3 shows that there is no apparent relationship between these two variables and it is very hard to make any conclusion.



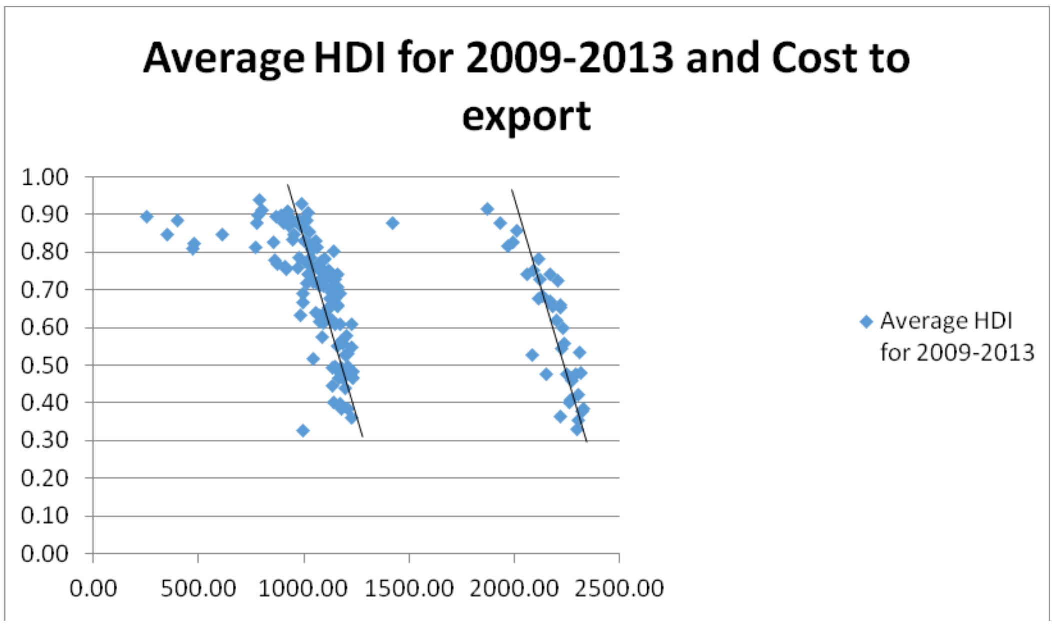
Graph 3: The relationship of the cost to Export with the HDI for landlocked and non-landlocked states. *Source: Author's calculations, based on the World Bank and UN Datasets.*

In this case, the export cost contains error terms that do not let to see the real picture. Thus, to capture the direct impact of landlockedness on country's development, channeled by export costs, a two-stage model has been constructed. To measure direct impact of the landlockedness, the research created a dummy variable for landlocked countries. This variable is 1 in case the country is landlocked and 0 when the country is not landlocked. Thus, the first model for the impact of the landlockedness on cost to export is

$$\text{Cost to Export} = \alpha_0 + \alpha_1 X_1 + \alpha_2 X_2 + \alpha_3 X_3 + \alpha_4 X_4 + \alpha_5 d_L + \varepsilon$$

In this case, where the Cost to export is the independent variable and the dependent variables for this analysis are the following: X_1 is the average GNI PC for 2004-2008, X_2 is the average unemployment rate for 2004-08, X_3 is the average exports of goods and services (% of GDP) for 2004-2008, X_4 is the average FDI net inflows (% of GDP) for 2004-2008, d_L is dummy variable for landlockedness, and ε is the error term.

In this first stage, the export cost is explained by landlockedness. Here the residuals are extracted from the export cost and the model left only the part of the export cost that can be explained by landlockedness. Now when trying to see the relationship between the landlockedness, the cost to export and HDI, the image is quite different. Stata-analysis shows that the dots on the left side of the Graph 4 are landlocked states, while the non-landlocked states are situated mainly on the right side. This means that when landlocked and non-landlocked countries have the same HDI, they have very different export cost and landlockedness obviously adds some cost to export. In other words, if all other factors are fixed the landlockedness brings higher export costs.



Graph 4: The relationship of the cost to Export with the HDI for landlocked and non-landlocked states, where the horizontal axis is the component of the export cost, explained by landlockedness, and the vertical axis is the HDI. *Source: Author's calculations based on the World Bank and UN Datasets.*

Independent variables	Coefficients	Standard Error	P-value

Average GNI PC for 2004-2008	-0.007	0.003	0.025
Average Unemployment Rate for 2004-08	-1.172	8.502	0.891
Average Exports of goods and services (% of GDP) for 2004-2008	-2.618	2.092	0.213
Average FDI Net Inflows (% of GDP) for 2004-2008	-3.010	10.754	0.780
Dummy landlocked	1070.811	116.989	0.000

In this first stage of the regression analysis, the research found that the landlockedness adds 1070 US dollar cost to export per container on average. The Table 2 bellow shows that one unit change in Dummy variable brings 1070 unit change in Dependent variable, which is in this case cost to export per container in US dollars. To put this another way, the landlockedness creates additional 1070 US dollar cost to export per container.

Table 2: The results of the first stage of the regression analysis. Dependent variable is Cost to Export per Container in US dollars average for 2004-2008. The table shows the impact of landlockedness on the export cost. *Source: Author's calculations, based on the World Bank Datasets.*

Now, when the research identified the exact part of the export cost that is driven by landlockedness, it is the time to do the second stage of the regression analysis. In this stage, HDI is explained by the part of export cost, which is driven by landlockedness:

$$HDI = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \varepsilon$$

In this model, dependent variable is Human Development Index. As independent variables the model uses the abovementioned indicators that suffer because of landlockedness: average GNI PC for 2004-2008 (X_1), average unemployment rate for 2004-08 (X_2), average exports of goods and services (as % of GDP) for 2004-2008 (X_3), average FDI net inflows (as % of GDP) for 2004-2008 (X_4), and the part of cost to export per container in US dollars that is directly driven by landlockedness that the research identified in the first stage of the analysis (X_5). This analysis will help to find whether our hypothesis is approved or not. The analysis will identify whether landlockedness per se impedes country's development or not, and if there is, to what extent?

Table 3: The results of the second stage of the regression analysis. Dependent variable is the Human Development Index average for 2009-2013. The table shows the impact of landlockedness on development. *Source: Author's calculations, based on the World Bank and UN Datasets.*

Independent variables	Coefficients	Standard Error	P-value
Average GNI PC for 2004-2008	0.000	0.000	0.000
Average Unemployment Rate for 2004-08	0.004	0.002	0.015
Average Exports of goods and services (% of GDP) for 2004-2008	0.000	0.000	0.887
Average FDI Net Inflows (% of GDP) for 2004-2008	0.003	0.002	0.163
Average Export cost for 2004-2008 (USD Per Container)	-0,000054312	0.000	0.008

Further analysis of the data shows that high export costs driven by landlockedness reduces country's Human Development Index by approximately 5.8%. In other words, all other factors fixed the landlockedness itself reduces country's HDI by 5.8%. To increase the level of accuracy and to determine the exact impact of landlockedness on HDI the research found that 1/3 of the standard deviation of HDI is driven by landlockedness.

In sum, the chapter discussed the main hardships that the landlocked economies face. These are mainly connected with the transportation costs that are added to export cost of the product thus making them expensive and less competitive in international markets. High risks and transportation issues affect negatively the business atmosphere of the country and therefore, reduce the number of FDIs in landlocked countries. This little investments brings higher unemployment rates in the country.

Second part of the chapter analyzed the existing data from international datasets to find the impact of landlockedness on country's development. Firstly, the analysis showed the exact influence of having no direct access to the open seas on the cost to export per container. The research found that landlocked economies have about 1070$ higher cost to export than the coastal states.

Secondly, the chapter identified the exact change in HDI that occurs because of landlockedness. The research found that there is an impact and it is about 5.8% of the index. Landlockedness decreases the HDI by its 5.8%. Therefore, our hypothesis that high export costs, driven by landlockedness, negatively affect country's development is approved.

Armenia as a Landlocked State

The previous section of the thesis discussed the major difficulties that landlocked economies face during their development. Hereby, the research goes deep into Armenia's case as a landlocked country with its special characteristics and difficulties. In this stage, the research highlights the development challenges in Armenia and discusses how Armenia responds to these challenges.

When looking at the world map, it can easily be observed that Armenia is relatively closer to the seaports compared to other landlocked states. Nevertheless, the mountainous relief of the country creates additional hardships for goods' transfer. This unfavorable relief makes the transportation of goods through these roads time-consuming in spite of shorter distance.

This issue was also expressed by almost all the experts. Despite the short distance, Armenian roads to the international markets have little opportunities and alternatives. They are mainly mountainous. In addition, during winter it becomes quite challenging to transport goods through these mountainous roads, which in case creates additional hardships for Armenia's international trade.

Yet another difficulty for Armenia's economic development is the small population size. With its 3 million residents, Armenia has quite a small market. Such a small-scale economy can hardly compete in international markets, and this is having a major impact on Armenia's production size. Therefore, this is another difficulty for Armenia's economy to deal with.

Poor natural resources create additional hardships for the country's economy. This leaves Armenia with little production in the country and creates dependency from imported goods. The landlockedness of the country raises the transportation costs and cost to import and export. Both exporting and importing products have to pass an additional hub to get to their destination point.

Therefore, this raises the prices for both import and export. This harms not only the people, but also the business atmosphere in the country.

Political relations with neighbors negatively influence Armenia's trade as well. Armenia is constrained with limited opportunities to get into international market. Armenia has two closed borders in the west and in the east with Turkey and Azerbaijan respectively. The Armenian-Azerbaijani border is closed because of on-going conflict over Nagorno-Karabakh. The border in west with Turkey was closed in 1993 again, because of the above-mentioned conflict. The issue of the opening borders with Turkey has been on the agenda since 2008, when the so-called Football Diplomacy started. However, the reconciliation process has been frozen and nowadays there is a low possibility of opening borders in near future.

The southern neighbor of the Republic of Armenia is Islamic Republic of Iran, which faces major economic issues due to the sanctions imposed on it. These difficulties also influence Iran's economic cooperation with Armenia. Besides, the border with Iran is very short and the relief is not appropriate for infrastructures. These factors limit the opportunity to use Iran as full alternative to Georgian transit.

This lack of alternatives places Armenia in a very bad situation and makes Armenian economy depend mainly on Georgian transit. The major transportation and energy routes pass through Georgia to link Armenia to the world market. Georgia plays a decisive role for Armenia as a landlocked state. According to different estimations about 70% of Armenia's foreign assets circulation passes through Georgia.

Regional cooperation and integrations are identified in the literature review as successful way to reduce the impact of landlockedness and to ensure stable and uninterrupted transit. However, present realities and particularly absence of political relations with two neighbors keep away Armenia from all of these cooperation projects in the region. The existing cooperation and continuing integration of Georgia, Azerbaijan and Turkey can indirectly affect Armenian-Georgian relations too, as identified through the interviews. Although their cooperation have no provision directly against Armenia, the country is left out from any project in the region, therefore increasing Armenia's isolation.

As it is illustrated, Georgia is the major transit country for Armenia. Therefore, it is important to discuss the provisions according to which Armenia and Georgia construct their relations. Both Armenia and Georgia are part of the "Convention on Transit Trade of Land-locked States" which in Article 2 particularly states that "…Consistent with the terms of this Convention, no discrimination shall be exercised which is based on the place of origin, departure, entry, exit or destination or on any circumstances relating to the ownership of the goods or the ownership, place of registration or flag of vessels, land vehicles or other means of transport used…" (UNCTAD 1967, p. 48).

Moreover, Armenia and Georgia signed a significant number of treaties that discuss the economic relations of these two countries, such as free trade between Armenia and Georgia, transit issue, tariffs, customs duties and transportation. In 1995, the parties signed a free trade agreement, according to which the parties agreed to implement a policy of non-discrimination and exempt customs duties for importing and exporting goods that pass the borders to get to the third country or come from a third country to one of the parties (The Government of the Republic of Georgia and the Government of the Republic of Armenia 1995). The parties also agreed not to impose any restrictions or additional taxes for transit goods. They also stress the importance of the freedom of transit and undertake the responsibility to provide "free and duty free transit" in Article 9 (The Government of the Republic of Georgia and the Government of the Republic of Armenia 1995, p. 3) which is highly important for Armenia as a landlocked country. Armenia and Georgia signed bilateral treaties in 1993 regulating the transit sphere. According to the treaties the parties agree to provide a transit for goods through their territories to the destination point according to the international law (Article 3) and guarantee secure and uninterrupted transit for them (Article 4).

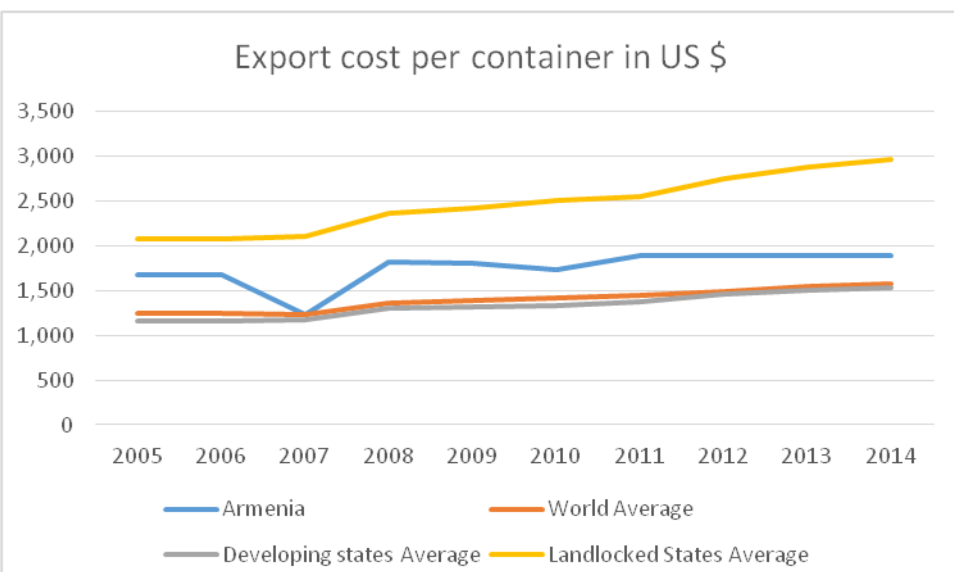
Regarding the customs duties, in 1993 the parties signed an agreement on cooperation in tariff affairs. According to the agreement, the transporting goods that pass the borders to get to the third country or come from a third country to one of the parties are not checked regularly unless there are evident reasons that they contain illegal goods (The Government of the Republic of Armenia and the Government of the Republic of Georgia 1993). Yet another treaty on customs regulations between Armenia and Georgia states that the parties agree to provide most favorable conditions for customs services (Article 1). Another agreement (The Government of the Republic of Armenia and the Government of the Republic of Georgia 1998) about the transportation and transit of people obliges the parties to provide free transit for people through their territories (Article 4).

When discussing the contractual base of the relations it is important to mention that most of the provisions discussed above have been followed by the countries. The experts and policy makers did not encounter any major problems or difficulties concerning the transit issue through Georgia. The latter continues to imply non-discriminatory and non-segregating policy towards the Armenian transit.

As shown in the literature landlocked states usually make investments in their transit states to guarantee secure and uninterrupted transit. Particularly, they make investments in infrastructure development. However, this is not the case for Armenia. Armenian investments in Georgia are mainly in business sphere. Meanwhile, Azerbaijan continues to be one of the major investors in Georgian infrastructure.

So the research identified the main difficulties that Armenian economy face during its development. These are connected mainly to the geographic positioning of the country and political relations with neighbors. As identified above, Georgia is the main transit of Armenian export and import. Although Armenia also uses Iran as a transit, the capacity is very low because of certain geographic and other problems related to the Iranian economy. In the next stage, the research discusses the sectors of the Armenian economy that theoretically can be influenced by landlockedness.

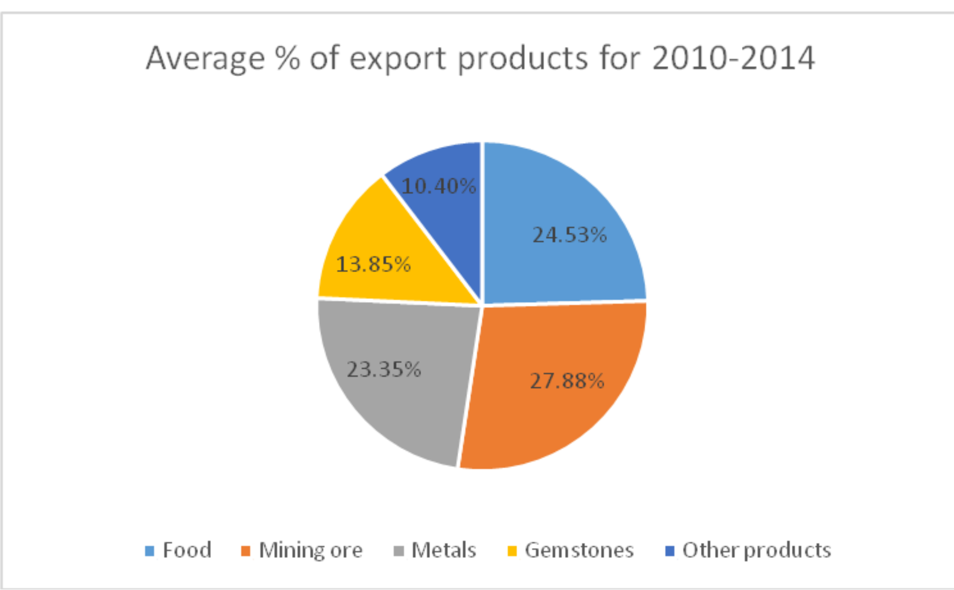
International trade is essential for country's economic development. It is the main factor that shapes the production in the country. Landlockedness and geographical difficulties are additional hardships that country's economy faces mainly through its trade with others. As identified in the literature review and discussed in the previous section landlockedness highly affects transportation costs making export costs per container very high. In this regard, Armenia also is not an exception.



Graph 5: The differences between Armenia's and the world and developing country's average export costs for 2005-2014. *Source: Author's calculations, based on the World Bank Datasets.*

When looking at the data for the cost to export per container for Armenia and comparing them with the world average, or with the averages of developing states it can be easily observed that Armenian export cost is high compared to both the world and developing countries averages for the last ten years. However, a comparison with the average transportation costs of the landlocked states shows that the cost to export from Armenia is lower than the average of landlocked states. According to the experts, this last point can be explained by the short distance to the sea and international markets for Armenia. The destinations for the exporting products are mainly Russia and the European Union and Armenian export pass shorter distance to get to the markets and open seas compared to other landlocked states.

Referring to the export of the country, the literature suggests, that landlocked economies usually have an export mainly dominated by one or two spheres. Landlockedness shapes the country's export. To find whether this applies to Armenia or not, the research provides an extensive analysis of the existed data of the Customs Service of the Republic of Armenia (2015). The pie chart below shows the averages of the percentages of dominant spheres of the Armenian export for last five years (from 2010 to 2014).



Graph 6: The averages of the percentages of the main sectors of Armenian export for 2010-2014. *Source: Author's calculations, based on the Customs Service of the Republic of Armenia Data*

Poor diversification of the export is also apparent in Armenia’s case. However, the experts argue that landlockedness is not the main reason for this image, and there are some other factors that determine Armenian export. Landlockedness and geographical problems add their additional negative impact on export. The interviewed economists and economic policy makers in Armenia mention that for diversified export the country should have a manufacturing production, and develop industry, which Armenia does not.

In this regard, it is very important to have manufacturing supply chain for the development of the export-oriented economy. The results of the conducted interviews indicate that having manufacturing supply chains in the region can highly boost Armenian manufacturing production and increase the share of manufactured products in country’s export. However, there are no manufacturing supply chains in the region, except in Turkey. Therefore, economic relations and open borders with Turkey have more importance for the export development in Armenia than landlockedness. Almost all the expert expressed the importance of the relations with Turkey.

To illustrate the fact that landlockedness have little impact on Armenia’s export again the data from the World Bank has been analyzed, particularly the cost to export per container in USD for last ten years (2004-2013) and export of goods and services as a percentage of GDP for the same period of time. The analysis showed no significant correlation between these two variables. In other words, high cost to export has little impact on Armenian export and there are some other factors that negatively affect the export. This comes to back the argument of the experts stated above.

Armenia did not adopt a special economic policy that particularly deals with the decrease of the negative impact of landlockedness on the economic development. Instead, there are several strategic papers and other types of documents that have provisions dealing with landlockedness related issues. To deal with the export problem and to increase and promote export in the country in 2011 Armenia adopted a document called "Export Oriented Industry Policy Strategy of the Republic of Armenia". This strategy paper aims at the increase of the competitiveness and sustainability in Armenia economy and intends to enlarge the export-oriented production in the country (Government of the Republic of Armenia 2011).

The content analysis of the documents regarding the economic policy in Armenia showed that infrastructural difficulties, particularly, high transportation costs, bad quality of roads, mountainous relief, instability and other limitations play a significantly negative role in Armenian export and production development. In the "Armenia's Transportation Sector Development Strategy 2020" landlockedness is emphasized as a major challenge for Armenia's economic development. Regarding the transportation issues the Strategy states that the landlockedness creates special kind of dependency of the transportation sector on few alternatives that exist for Armenia (Ministry of Transport and Communication of the Republic of Armenia 2008, p. 3).

It is of utmost importance for landlocked states to have developed infrastructure to link them with the international market. Particularly, highly developed transportation routes play essential role in the development of those countries. In case of Armenia when analyzing the data on the percentage of the paved roads of total, the research found that about 90% of the roads in Armenia are paved (Nation Master 2015a). However, when comparing the statistics of the total roads per 1000 people, the research found that Armenia is in the 136 rank with about 3 km roads per 1000 people (Nation Master 2015b).

When referring to the infrastructure of Armenia most of the experts express their concerns about it. Particularly, they state that Armenia's relief is not appropriate for highly developed infrastructure, mainly; mountainous relief is a huge obstacle for railroads. The Southern part of Armenia that links the country with Iran has quite unfavorable geographical conditions, which raise the risk of any infrastructural construction. Another point that the experts refer is the low quality of roads in Armenia. They mainly state that roads in Armenia are narrow and are not appropriate for overloaded transportation.

The government took certain actions to increase the quality of the roads and make transportation easier and timesaving. Particularly, they started the construction of the North-South highway, which is going to connect Armenia's northern border to the southern. This project aims to develop the Armenian economy and regional trade (Government of the Republic of Armenia 2010). However, the experts are skeptic about this project and most of the interviewers stated that the road could have its impact on Armenian economy, but only in long run. These kind of long run projects can be important in case of sustainable and developed economy and Armenia has much important problems to tackle with to gain short-term benefits. As first steps, Armenian economy needs programs with short-term payback to develop.

However, the government representatives do not agree to these points. To the points of the other interviewees that this project has only long-term benefits they particularly mention that the construction of the road has positive externalities, such as it creates demand for construction materials in the country thus forcing the local businesses to produce more construction materials. Besides, the project has a huge staff working on it so it created workplaces and increases the employment rate.

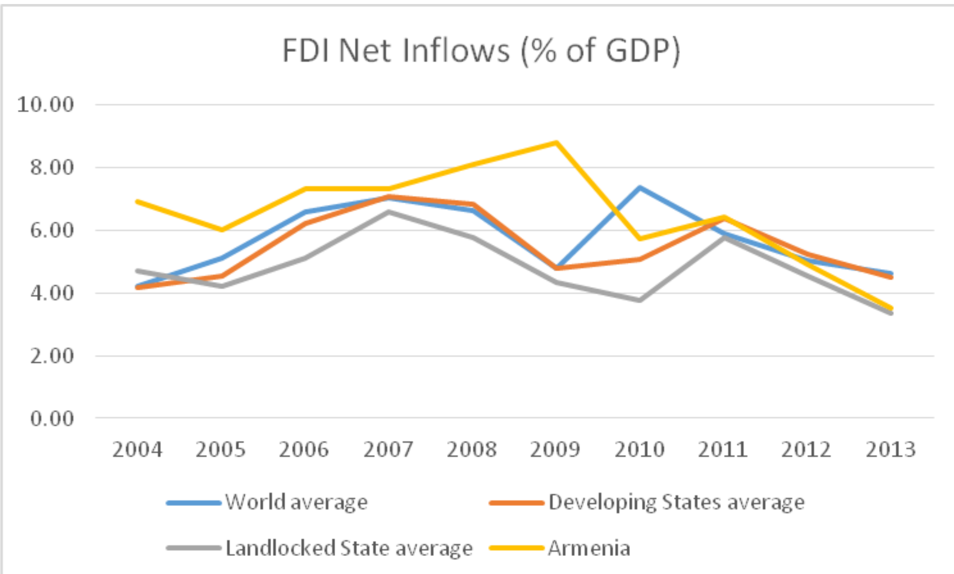
Thus, this project has both advantages and shortcomings, however, no one can deny its importance in a long-run. Armenia wants to become a transit state for Iran and link the country to the world and this project can be a significant step for that. The overall benefits of the project can outweigh the costs in a long-run perspective.

Transportation problems, high transit costs, high costs to export have their significant influence on the foreign direct investments in the landlocked countries. The literature on the difficulties and challenges of the landlocked states shows that foreign direct investments are lower compared to their maritime neighbors. High transit costs and underdeveloped infrastructure decrease the intentions of foreign investors to make investments in landlocked countries.

Speaking about the FDIs, the experts mention high risks for foreigners to make investments in landlocked economies and particularly, in Armenia because of high transportation costs, bad infrastructure which is connected with the mountainous relief. They even mention that landlockedness can be an obstacle for the local investors to do investments.

The results of the expert interviews indicate that FDIs generally have two directions; firstly, they are directed to the domestic market of the host-country, and secondly, the investors use the host-country's resources, particularly, cheap labor force, to produce their final goods in lower cost and to export them to the international markets. Small developing states are mainly used for the second purposes.

When analyzing the statistics of the last ten years on FDI Net Inflows as a percentage of the GDP in Armenia the research found that the Armenian indicators are better than those of the average of the landlocked states and developing states. Armenia even has higher results compared with the world average. As shown in the graph 7, although the net inflow of the FDIs in Armenia fall during last four years, the averages are higher than in other landlocked states' average.

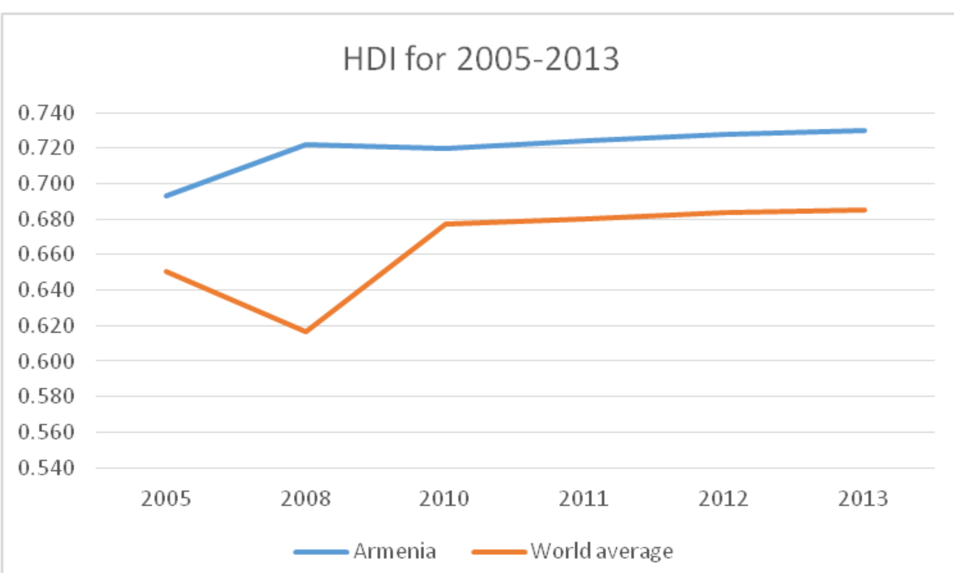


Graph 7: The FDI Net Inflows (% of GDP) in Armenia, World average, average for landlocked and for developing countries for 2004-2013. *Source: Author's calculations, based on the World Bank Datasets.*

Despite being landlocked Armenia's FDI Net inflow was higher from the world average before the 2009 crisis. However, it fell down after the financial crisis. The experts explain this fact by the fact that the FDIs in Armenia are mainly directed to three main sectors: mining, IT and communication and energy. In mining sector, the investments are not directed to the ore development and the raw minerals are exported without any production in the country. High risks connected to the high transportation and export costs create obstacles for foreign investors to make investments in production and manufacturing.

All these hardships that occur because of the landlockedness, high cost to export, high cost to import, little share of export in the economy, risky business environment and low level of FDIs, bring to the decrease in country's GDP Per Capita. Armenia's indicators for the last ten years are significantly lower from the world average and even from the average of landlocked states in the world. The analysis of the data from World Bank shows that Armenia's average GDP Per Capita for the last ten years is about 2824 USD, which is about 21% of the World average. Armenia's GDP PC is even lower than the average of the landlocked developing states, which is approximately 3674 USD.

As found in the first part of the thesis, the landlockedness reduces the HDI by 5.8%. Now the research tries to find what the trend of the HDI in Armenia was for last years. To find this the research refers to the data provided by UNDP dataset for the period of 2005-2013. In the latest 2013 report, Armenia is the 87th 187 countries with 0.730 points out of one. The graph 8 shows the trend of the HDI in Armenia during last decade in comparison with the world average. It can easily be observed that the Armenian indicators are higher from the world average and they constantly increase during this period.



Graph 8: The HDI of Armenia in comparison with the world average for 2005-2013. *Source: Author's calculations, based on the World Bank Datasets.*

To sum up, the chapter identified the major difficulties that Armenia's economy faces because of being landlocked. The analysis showed that closed borders with two neighbors negatively influenced the Armenia's economic development. This has more impact on the Armenian economy than landlockedness.

Then the chapter discussed the particular sectors of the economy that are negatively influenced by landlockedness. The analysis showed that although the landlockedness has its negative impact on these sectors, there are other more influential factors that mainly determine Armenian economy. The impact of landlockedness is seen in the export and FDI Net inflows in the country; however, this impact is assessed not very high by the experts of the field.

As identified in the previous part of the thesis landlockedness decreases HDI of the country by 5.8%, which is only 1/3 of its standard deviation. In Armenia, although there is an impact of landlockedness on the economic development, it is not decisively high. Thus, the findings of the first part are relevant also in Armenia's case.

Conclusions

The paper mainly discussed the difficulties and challenges faced by landlocked economies. It highlighted the sectors of the economy and the economic indicators that are negatively influenced by the landlockedness. In general, the paper found that the landlocked states have lower level of economic development and high costs to export for a product.

By econometric analysis, the paper found the direct linkage between landlockedness and Human Development Index. During the first stage of the demonstrated econometric analysis, it was identified that landlockedness has a negative direct impact of cost to export per container. In particular, the landlockedness raises the export cost in general by 1,070 USD per container.

Regarding to the first research question to measure the impact of this high export cost on country's HDI the second stage of the model was constructed and analyzed. The research found that landlockedness overall reduces the HDI by 5.8%. This is the 1/3 of its standard deviation. However, its 2/3 part depends on some other factors. Thus, the landlockedness has a negative impact on the country's development. These findings help to state that the research Hypothesis that high export costs, driven by landlockedness, negatively affect country's development.

Trying to answer to the second research question about the influence of the landlockedness on Armenia's economic development, the research identified major difficulties that Armenia face during its development. Particularly, the research found that political relations with neighbors and closed borders in the west and in the east negatively influence the Armenian economy. The mountainous relief created additional difficulties for export and import and Armenian infrastructure has major issues to deal with.

Then the role of Georgia in Armenian transit was discussed and the research found that the countries have a solid contractual base for these relations and they mainly follow these provisions. However, Armenia is left out from the regional infrastructural developments because of political issues, which could have extremely important role for Armenia as a landlocked country.

From the analysis of the existing data on the economic indicators that mainly affected by landlockedness and the interviews conducted to fill the remained gaps it can be stated that landlockedness obviously has its impact on Armenia's economic performance; however, this is not the main reason of Armenia's low level of development. Other factors, such as political relations and closed borders with the neighbors, absence of manufacturing production chains in the region, poor diversification of export have greater influence on Armenian economy.

Concerning the third research question on the policy response of the Republic of Armenia to the landlockedness, the research found that there is no specific state policy that deals with the landlockedness and tries to compensate the existing hardships. However, the analysis of the strategy papers and development visions of the Republic of Armenia showed that the sectors that are influenced by the remoteness form open seas and international markets are tackled by the government and state makes necessary interventions wherever needed for the improvement of the state economy.

To sum up, the landlockedness is a challenge that creates additional hardships for the country. However, this cannot be decisive in country's development and market itself with selective interventions from the state can create better atmosphere for development. Technological advancements in the 21^{st} century can help to create better strategies for development and reduce the impact of not having direct access to the open seas.

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Appendices

Appendix 1: Countries' HDI ranking: Average for 2005-2013

The table illustrates the averages HDI for 2005-2013: Source: Authors calculations, based on the data taken from UN Datasets: The countries highlighted by red are Landlocked

	Country	Average for 2005-2013
Very high human development		
1	Norway	0,940
2	Australia	0,925
3	**Switzerland**	**0,911**
4	United States	0,908
5	Netherlands	0,906
6	Germany	0,904
7	New Zealand	0,903
8	Ireland	0,899
9	Canada	0,898
10	Denmark	0,897
11	Sweden	0,894
12	United Kingdom	0,891
13	Iceland	0,890
14	**Liechtenstein**	**0,887**
15	Japan	0,884
16	Singapore	0,883
17	Israel	0,881

18	**Luxembourg**	**0,880**
18	Korea (Republic of)	0,880
20	France	0,879
21	Hong Kong, China (SAR)	0,877
21	Finland	0,877
23	Belgium	0,876
24	**Austria**	**0,873**
25	Slovenia	0,870
26	Italy	0,869
27	Spain	0,862
28	**Czech Republic**	**0,857**
29	Greece	0,855
30	Qatar	0,848
31	Brunei Darussalam	0,846
32	Cyprus	0,844
33	Estonia	0,833
34	**Andorra**	**0,831**
35	Lithuania	0,826
35	United Arab Emirates	0,826
37	Poland	0,824
38	**Slovakia**	**0,823**
39	Malta	0,818
40	**Hungary**	**0,815**
40	Cuba	0,815
42	Portugal	0,812

42	Saudi Arabia	0,812
42	Bahrain	0,812
45	Chile	0,809
46	Kuwait	0,807
47	Latvia	0,805
48	Croatia	0,804
High human development		
49	Argentina	0,792
50	Bahamas	0,789
51	Libya	0,781
52	Montenegro	0,780
53	Uruguay	0,778
54	Romania	0,777
55	Barbados	0,775
56	Antigua and Barbuda	0,774
57	Palau	0,772
58	Russian Federation	0,771
58	**Belarus**	**0,771**
60	Bulgaria	0,769
61	Malaysia	0,764
62	Oman	0,762
63	Trinidad and Tobago	0,761
64	Seychelles	0,758
65	Lebanon	0,757
66	Panama	0,754

66	Venezuela (Bolivarian Republic of)	0,754
68	Mauritius	0,753
69	Costa Rica	0,750
70	**Kazakhstan**	**0,748**
70	Saint Kitts and Nevis	0,748
72	Mexico	0,746
73	Grenada	0,745
74	Jordan	0,743
75	**Serbia**	**0,742**
76	Sri Lanka	0,734
76	Turkey	0,734
76	Brazil	0,734
79	Georgia	0,732
80	**Azerbaijan**	**0,731**
81	Ukraine	0,728
82	Bosnia and Herzegovina	0,726
83	Iran (Islamic Republic of)	0,725
84	**The former Yugoslav Republic of Macedonia**	**0,724**
85	Peru	0,720
85	**Armenia**	**0,720**
87	Belize	0,719
88	Saint Vincent and the Grenadines	0,717
89	Saint Lucia	0,716
89	Fiji	0,716

91	Dominica	0,715
92	Jamaica	0,711
92	Tunisia	0,711
94	Thailand	0,710
95	Albania	0,707
96	Algeria	0,704
97	Colombia	0,703
98	Ecuador	0,702
99	Tonga	0,701
Medium human development		
100	China	0,695
100	Suriname	0,695
102	**Turkmenistan**	**0,692**
103	Dominican Republic	0,689
104	Samoa	0,688
105	Maldives	0,685
106	**Mongolia**	**0,674**
107	Palestine, State of	0,673
108	Egypt	0,672
109	Indonesia	0,668
110	**Paraguay**	**0,666**
111	**Botswana**	**0,663**
112	Gabon	0,662
113	Syrian Arab Republic	0,659
114	**Bolivia (Plurinational State of)**	**0,656**

115	**Moldova (Republic of)**	**0,653**
115	El Salvador	0,653
117	Philippines	0,651
118	**Uzbekistan**	**0,648**
119	South Africa	0,638
120	Iraq	0,636
121	Micronesia (Federated States of)	0,628
122	Viet Nam	0,625
123	Guyana	0,623
124	Cape Verde	0,621
125	**Kyrgyzstan**	**0,617**
126	Vanuatu	0,615
127	Guatemala	0,611
128	Honduras	0,608
129	Namibia	0,606
130	Nicaragua	0,604
131	Kiribati	0,603
132	Morocco	0,601
133	**Tajikistan**	**0,595**
134	Timor-Leste	0,589
135	**Bhutan**	**0,578**
136	Cambodia	0,568
137	India	0,567
138	Ghana	0,554
139	Congo	0,552

Low human development		
140	**Lao People's Democratic Republic**	**0,548**
141	Equatorial Guinea	0,547
142	Sao Tome and Principe	0,544
143	Bangladesh	0,535
144	Pakistan	0,528
145	**Zambia**	**0,527**
146	**Swaziland**	**0,522**
147	**Nepal**	**0,519**
148	Kenya	0,517
149	Myanmar	0,508
150	Angola	0,502
151	Solomon Islands	0,492
152	Nigeria	0,490
152	Madagascar	0,490
154	Cameroon	0,488
155	Yemen	0,486
156	Comoros	0,479
157	Senegal	0,477
158	Papua New Guinea	0,475
159	Mauritania	0,474
160	**Lesotho**	**0,468**
161	**Uganda**	**0,467**
162	Tanzania (United Republic of)	0,464
163	Haiti	0,462

163	Benin	0,462
165	Togo	0,460
166	**Rwanda**	**0,458**
166	Sudan	0,458
168	**Zimbabwe**	**0,457**
169	Djibouti	0,449
170	**Afghanistan**	**0,445**
171	Côte d'Ivoire	0,436
172	Gambia	0,434
173	**Ethiopia**	**0,405**
174	**Malawi**	**0,401**
175	Guinea-Bissau	0,397
176	**Mali**	**0,393**
177	Liberia	0,387
178	Guinea	0,382
179	Eritrea	0,378
180	Mozambique	0,376
181	**Burundi**	**0,370**
182	**Burkina Faso**	**0,364**
183	Sierra Leone	0,355
184	**Chad**	**0,353**
185	**Central African Republic**	**0,349**
186	**Niger**	**0,321**
187	Congo (Democratic Republic of the)	0,319

Appendix 2: Questionnaire for semi-structured interview

1. What problems does Armenia face because of being landlocked?

2. What is the impact of landlockedness on FDIs in Armenia?

3. What is the impact of landlockedness on export and import in Armenia?

4. What kind of steps is Armenia taking for reducing the impact of landlockedness?

5. What responsibilities does Georgia have as a transit country for Armenia? How are these responsibilities carried out?

6. How high are Georgia's tariffs on Armenia compared to those of other states? How do these tariffs influence Armenian economy?

7. It is essential for landlocked countries to have developed infrastructure. How will you assess the Armenian infrastructural capacity?