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IMPACT OF THE TRANSPORTATION INFRASTRUCTURE ON THE
COMPETITIVENESS LEVEL OF ECUADORIAN COMPANIES IN THE
GLOBAL MARKET

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Thesis presented to Escola de
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MATEO JOSE JARAMILLO CALDATTO

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INFRASTRUCTURE DEVELOPMENT

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ABSTRACT

Competitiveness is one of the most important advantage when a country wants to persevere in the global economy. Latin-America has been relegated from the economic growth in the last decades. There are several reasons why the region has not been able to catch up with the rest. As a matter of fact, logistics costs for the region has been rising. As a result, companies and countries have lost competitiveness against other countries where the development of transportation infrastructure has decreased logistics costs.

The world economic forum developed a study where it compares competitiveness between countries. It contains 12 pillars that influence the final outcome. In fact, one the main pillars is transportation infrastructure. The study objective was to determine the impact of the development of transport infrastructure in Ecuadorian companies.

The methodology used was through interviews to important key business and academic people with knowledge and experience in the field.

The study was able to determine that lack of innovation, corruption, and the dependence of the exploitation of natural resources has affected the development of transport infrastructure in Ecuador. As a result, Ecuadorian companies competing in the global market can encounter strong competition.

Key words: logistics, competitiveness.

RESUMO

A competitividade é uma das vantagens mais importantes quando um país deseja perseverar na economia global. A América Latina ficou fora do crescimento econômico nas últimas décadas. Existem várias razões pelas quais a região não foi capaz de alcançar o resto. Por uma questão de fato, os custos logísticos para a região estão aumentando. Como resultado, as empresas e os países perderam a competitividade contra outros países em que o desenvolvimento da infra-estrutura de transporte diminuiu os custos logísticos.

O fórum econômico mundial desenvolveu um estudo onde compara a competitividade entre países. Contém 12 pilares que influenciam o resultado final. De fato, um dos principais pilares é a infra-estrutura de transporte. O objetivo do estudo foi determinar o impacto do desenvolvimento da infra-estrutura de transporte nas empresas equatorianas.

A metodologia usada foi através de entrevistas para importantes principais negócios e pessoas acadêmicas com conhecimento e experiência no campo estudado.

O estudo determinou que a falta de inovação, corrupção e a dependência da exploração de recursos naturais afetou o desenvolvimento de infra-estruturas de transporte no Equador. Como resultado, as empresas equatorianas que concorrem no mercado global podem encontrar uma competição forte.

Palavras chave: competitividade, logística.

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1. Introduction

In order for a country to be competitive in the global economy, the World Economic Forum has developed a framework with twelve pillars divided in four categories: Human Capital, Innovation Ecosystem, Markets and Enabling Environment. The last category contains important pillars that represent the base for a country to be competitive. (Schwab, 2019) defined one of these pillars as Infrastructure, with two subcategories: Utility and Transport. The first evaluates the access, reliability and quality of electricity and water supply. The later analyses the connectivity, quality and efficiency of transport services.

1.1. Overview

There is a strong correlation between the most competitive countries with strong transport infrastructure development. The report divides the world in 7 different regions: East Asia, Eurasia, Europe and North America, Latin America and the Caribbean, Middle East and North Africa, South Asia and Sub-Saharan Africa. The institution evaluates from 0 to 100 the qualities mentioned before. The best average per region is 79.7 for Europe and United States, and the worst is 45.0 for the Sub-Saharan Africa (Schwab, 2019).

For every pillar there is a score, giving a final average to show a list from best to worst in terms of competitiveness. In the case of transport infrastructure, to calculate every score the institution used several different methods from surveys, calculations of kilometers of roads and railroads and efficiency of transport services.

It is important to understand how determinant infrastructure is for economic development and how this can impact on every stakeholder of the society. Governments, industries and individuals are benefited from it under several points of view. First, health level is improved significantly due to reductions of CO₂ because of efficient transport systems. In addition, time and distance that take people to reach health services are reduced, thus improving quality of life. Third, the access to education is also improved, as students have better ways to reach schools and universities, especially for people in

rural areas. Lastly, there is the economic development of the region, due to the improvement of transport infrastructure.

1.2. The Latin-American transport infrastructure

Latin America has been a region with inadequate infrastructure development that is holding back economic growth and poverty reduction. In addition, the role of public and private sector has changed significantly in the last thirty years. An important decrease of the public sector caused a surge by the private sector participation in transport infrastructure investment (Calderón & Servén, 2012). There are some reasons for this to happen. During the 80s, in the so called “Lost Decade” in Latin America, the region suffered from big waves of inflation generating big fiscal imbalances. In order to tackle this, the governments cut expenditures and long-term investments. As a result, the development of transportation systems by the public sector has been decreasing over the years (figure 1).

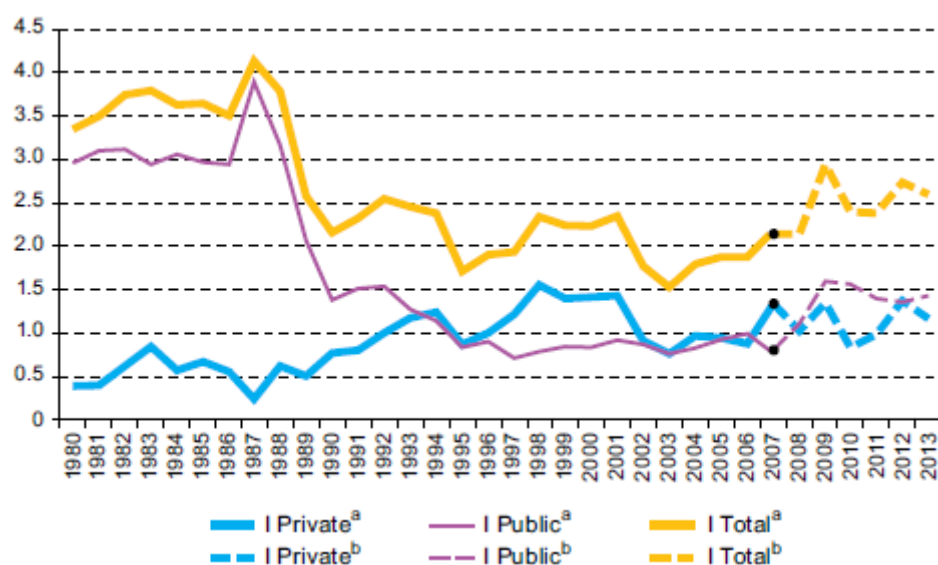


Figure 1 Latin America: Infrastructure Investment by Sector, Public and Private, 1980-2013(Percentages of GDP). Reprinted from Latin America Infrastructure Investment situation and Challenges by J. Larde.

Note: The following countries are included: Argentina, Brazil, Chile, Colombia, Mexico and Peru. The following sectors are included: transport, energy, telecommunications, water and sanitation. Transport comprises roads and railways only, except for public investment in Argentina, which includes transport as a whole. Energy includes electricity exclusively.

Also, private investment has decreased since the economic crisis during the 80s, but the impact was higher on the public investment due to the reasons explained before.

Even during 2003 to 2013, when the region experienced sustained GDP growth the investment did not increase on both sectors, reaching historically low averages of 1.2% and 1.1%, respectively (Lardé, 2015).

According to the World Bank Logistics Performance Index (LPI), the regions ranks only better than third world countries in Africa and Asia (figure 2). The LPI have some sub-indexes like quality of trade and transport, competence and quality of logistics services, and efficiency of customs clearance processes. All of these sub-indexes are decreasing year over year, but the worst is the latter. Heavy bureaucracy is the main cause and is leading the region to stay behind the others.

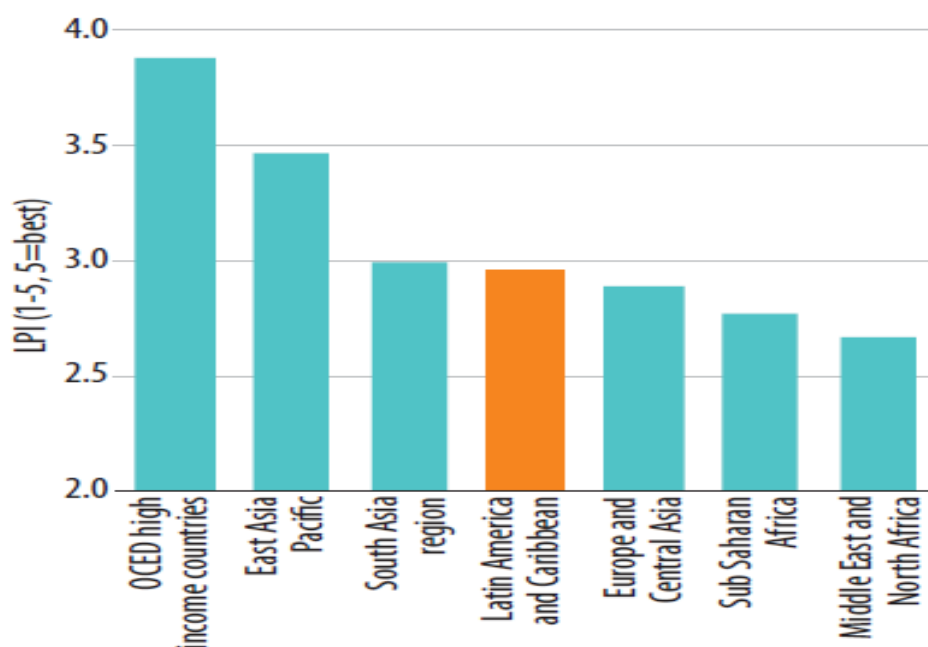


Figure 2 Latin America's 2014 Logistics Performance Index (LPI). Reprinted from *Rethinking Infrastructure in Latin America and the Caribbean, Spending Better to achieve More* by M. Slawson, M. Fay and C. Fox.

Note: Regional averages weighted by current GDP. High-income excluded from regional aggregates everywhere except OECD.

Within the region, there is a big disproportion between the best performer in terms of LPI (Chile) and the worst performers like Bolivia, Guatemala and Venezuela. The worst are at the same level of the sub Saharan African region. Latin America as a whole ranks poorly on the World Bank's Logistics Performance Index (LPI), closer to Sub-Saharan Africa than to East Asia. Disaggregating the region's overall LPI shows that this lackluster performance is due to inefficient customs clearance processes and shoddy trade and transport infrastructure (Slawson, Fay, & Fox, 2017).

There is still a big amount of work to be done in order to catch up with the rest of the regions. The development of infrastructure is not only related to transportation systems, but it has to include freight distribution effectiveness. This means that a good transportation system has to be together with strong freight distribution systems to backup it (Rodrigue, 2012).

1.3. Aims of the study

1.3.1. Relevance

Infrastructure development is the base of every modern economy. In the new interconnected world, it is nearly impossible to have economic development without good transportation infrastructure. Is vital, for local industries, to have efficient transportation systems to develop a competitive advantage compared to other regions. Latin America has been a region lagging behind in this sense, and it is important to comprehend the underlying reasons of it.

The study is relevant for the Ecuadorian companies that want to succeed in a global market and are affected by higher logistics costs due to a low infrastructure, compared to their competitors worldwide. Indeed, this will hopefully help them to evaluate the situations, yielding arguments to lobby and pressure the government to invest more in infrastructure. This will not only benefit the company itself, but the whole society, because higher level of competitiveness means lower unemployment rates and higher salaries.

Companies, governments and societies in Latin America (and especially in Ecuador) will be interested in the study, because it will yield an important insight of the importance of infrastructure development and in which extent this can help to increase competitiveness.

1.3.2. Purpose

The study will explore in specific how levels of infrastructure in Ecuador is influencing the global competitiveness of Ecuadorian companies, compared to foreign competitors.

This study is intended to address how transportation infrastructure is relatively important to the competitiveness, and how governments can tackle this problem investing in infrastructure development. In addition, the study will address the level of impact on companies of transportation infrastructure in terms of cost efficiency and profitability.

1.3.3. Scope of the study

In order to understand the issue, the study will address two main matters. The first will evaluate the impact of levels of transportation infrastructure on competitiveness of Ecuadorian companies. Indeed, this question is the main issue addressed by this study. But, without the next question, it is difficult to have a clear picture and overall analysis.

The second question will try to understand the relation between logistics costs and competitiveness of a company in the global context. Specifically, this study will try to address this relation in the Ecuadorian scenario.

1.4. Some issues

1.4.1. Difficulties analyzing Ecuadorian companies

The main issue is that there is not enough academic research about the topic, and information has to be extracted from different government databases that may sometimes be biased. In addition, Ecuadorian companies have different complex processes and may be difficult to analyze all of them with the same criteria.

Moreover, Ecuador is a small country, but with 4 different natural regions: Highlands, Rainforest, Coast and Islands. Each of them has its own characteristics, and companies operating in each of them have different business approaches, specifically in the logistics aspect.

1.4.2. Difficulties analyzing competitiveness related to transport infrastructure

Competitiveness tends to be a subjective topic, as it can be analyzed from different perspectives and opinions. The Global Competitiveness Report explains it in a way to have a better approach to understand human welfare. *“The goal of human-centric economic progress is the increase in sustainable and equitable welfare for a country’s population. And while economic growth, as measured by GDP, is not an end in itself, it remains a precondition for enhancing human welfare. It provides the resources necessary for improving health, education, and security. It is therefore important for countries to monitor closely the factors that determine competitiveness, while keeping an eye on the wider societal goals and related trade-offs”* (Klaus Schwab; Xavier Sala-i-Martin; Richard Samans, 2017). In this report, one of the pillars for competitiveness is Infrastructure, which is explained to be key for factor-driven economies, as well as macroeconomic environment, health and primary education and institutions.

2. Literature review

The literature review will build the grounds for the study. It will explore the history and formation of Latin American countries, thus giving a picture of the challenges in terms of infrastructure, especially on transportation issues.

2.1. Theoretical foundations

2.1.1. Pre-colonial economic historical background

Latin-America is one of the richest regions of the world in terms of availability of natural resources. Before the arrival of the Europeans conqueror, Latin America had two big empires: Incas (Andean region) and Azteca (Central Mexico). There were some other small societies, but they were not economically influent during that time. These two main empires, Inca and Azteca, had not economically integrated each other. For many historians, it is difficult to assess their economic systems, as there is not a significant amount of evidences and resources to analyze them. In general terms, these two economies were based on reciprocal exchanges between local domains, because of long distances and lack of fast transportation like horses. The access to long-distance goods demanded a big amount of resources, enabling the rise of elites within these societies. These elites were able to control the access to important resources and trading. Nevertheless, these new “elites” used these goods to reinforce their status and become more powerful and influential within the empire (Tantalean, 1994).

When the first Europeans arrived, they tried to impose the new economic systems, but they realized they were not completely different from the previous local practices. For example, tribute taxation and market exchange were similar, having a centrally administrated economy. Moreover, both empires had complex economic and trading systems difficult for the newcomers to fully understand. As a result, it seemed to be more logic, for the colonist, to impose new economic schemes, adapting them by force. This was not an easy task for them, as large distances played an important role at the moment of enforcing new economic policies (Tantalean, 1994).

2.1.2. Colonial era

During the three centuries after the discovery of America, Europeans empires, through their colonies, established intensive exploitation of these resources. Natural resources, such as gold, silver and cotton, were the main ones explored, giving these countries big economic benefits, as all the profits were taken back to them. In addition, sugar and coffee were also exploited, due to good soil of the region, especially in tropical and subtropical areas. This era was characterized by a rigid structure that only allowed the development of bourgeois capitalist productive element.

But, during the last period of the colonies (1700 to 1790) due to the Bourbon reforms in Spain, free trade and economic opening started to shape to new economic landscape of the eighteen century. According to (Guerra, 1997) the silver production between 1762 and 1784 increased from 5 to 27 million pesos. In addition, the growth of the industrial productivity in Europe, demanded more and more raw material. Areas such as Antillas, Venezuela and Rio de la Plata boomed as a consequence of these new economic reforms, due to their connection to sea trade. Out of the areas mentioned before, Rio de la Plata was the one that experienced the most spectacular boom in twenty years. The main good produced in this area was leather. The exports raised from 150 thousand units to 800 thousand. Lastly, Brazil was also part of an economic transformation. The new economic centre moved from the north-east (mainly because of sugar-cane production) to the centre-south, to the area where is now called Minas Gerais. In this area, big amounts of gold and diamond deposits were found, leading all the economic investments and the expansion of the metropolitan power (Guerra, 1997).

2.1.3. Independence and new republic era

In the beginning, this era was defined by a large and difficult transition between colonial feudalism to the dependent capitalism. This responded to the revolutions happening around the world against the bourgeoisie and elites like the French Revolution that started in 1789. In addition, the political crisis created by the Napoleonic expansion over Spain and Portugal. The first phase of this era (1790 to 1826) was marked by horrendous wars causing thousands of casualties and affecting the economies of both sides. As the republics were created, they were suffering from serious economic deficits, since war was not cheap to fight (Guerra, 1997).

The majority of the countries in the region relayed mostly on natural resources to develop their economies, thus resulting on an overdependence of them. Some economists developed a theory called “Dutch disease”, where countries or regions suffering it have an overvalued currency. On the long run, this leads the economy to have low rates of growth of the manufacturing industry, artificially high wages and high levels of unemployment (Bresser-Pereira, 2008). As a big amount of the region investment goes toward developing the natural resource exploitation industry, the rest of the sectors, as manufacturing and services, are underinvested, creating an imbalance and low levels of growth.

2.1.4. The Dutch disease phenomenon

In order to understand why Latin-America is still part of the developing countries, it is important to understand the economic theory called “Dutch disease”. *“The Dutch disease is a major market failure originated in the existence of cheap and abundant natural or human resources that keep overvalued the currency of a country for an undetermined period of time, thus turning non-profitable the production of tradable goods using technology in the state-of-the-art. It is an obstacle to growth on the demand side, because it limits investment opportunities”* (Bresser-Pereira, 2008). This quick description of the phenomenon shows how a region can be over dependent on abundant natural resources, and how this can affect the other sectors. Latin-America is one of the richest regions in terms of these resources, and the lack of development of proper infrastructure for other industries perhaps might be, at least partially, explained with this theory.

An example of this phenomenon, together with the severe political instability, is the current situation of Venezuela. That is the richest country in oil reserves but, at the same time, it is the country with the highest levels of inflation in the world, shortage of main essential products (as milk, bread and toilet paper), and high levels of corruption. According to the Global Competitive Index, Venezuela ranks 127 out of 138 countries in the world (Klaus Schwab; Xavier Sala-i-Martin; Richard Samans, 2017).

During the boom of the commodities prices in the first decade of the 21st Century, the region received an enormous inflow of economic resources, principally due to the fast-economic growth of countries like China and India, thus creating an insatiable

demand for natural resources. This inflow helped the region to boost their economies but increased the dependence on the export of these goods. When, in 2014, the boom cycle ended with the commodity prices crisis, it was too late for countries that did not save the surplus of overpriced commodities.

In the region, only Chile was able to create the copper sovereign fund in 1985, with the revenue's surplus of copper price, to establish a counter-cyclical fiscal mechanism, aimed to face fiscal deficits when they appear (Ffrench-Davis, 2010).

The overdependence on commodities export led the region to develop infrastructure only to match the needs of this exploitation industry. As explained before, the other sectors were underinvested, having important consequences in logistics costs, producing impact on the competitiveness, especially if it is analyzed in the global context.

The development of infrastructure of a country/region comes together with its economic growth. Infrastructure is one of the most important pillars where effective modes of transportation – including high quality roads, railroads, ports and air transport – enable companies to get their goods and services to market in a secure and timely manner, and facilitate the movement of workers to most suitable jobs (Schwab, 2019). According to World Economic Forum Competitiveness 2019 report, there is a strong correlation between quality of infrastructure and competitiveness. Latin-America is still behind all other developing regions in terms of competitiveness, except Sub-Saharan Africa and the South Asia.

There are ways to tackle the problem of overdependence on natural resources. As mentioned before, Chile was able to create a fund with the surplus of the price of copper (Chile is the country with the biggest copper reserves) when the price market was high. *“The development of counter-cyclical fiscal mechanisms in emerging economies is especially relevant for three reasons. First, domestic markets in developing countries tend to be much more volatile than in developed countries. This implies that the effect of the business cycle on public accounts is stronger. Second, in developing economies, the size of automatic stabilizers tends to be smaller than in developed economies. Third, on the external side, the capacity to manage deficits is more limited, given the pro-cyclical character of international capital markets and the insufficiency of compensatory financing from IFIs”* (Ffrench-Davis, 2010). The three reasons exposed are important to

consider by governments that are trying to leave exports driven economy based on commodities. Of course, this is not an easy task: it takes time for planning and it is a long-term strategy. In addition, long term policies are difficult to implement in countries with political instability.

“During the past few decades, the landscape of the world economy has changed. New trade patterns reflect the globalization of the supply chain and intra-industry trade and increasing flows between neighboring countries and trading blocs with similar factor endowments. Similarly, the approach to production, trade, and transportation has evolved incorporating freight logistics as an important value-added service in global production. This integrated approach has become essential and, as such, both the trade agenda and freight logistics are beginning to converge, providing an unparalleled opportunity for countries to deepen their integration with neighboring countries and their national performance in transport related services. Consequently, developing countries are finding themselves hard-pressed to adjust their policy agendas to take into account costs not covered in past rounds of trade negotiations” (Guerrero, Lucenti, & Galarza, 2010).

The benefits of logistics investments are creating new opportunities for companies to increase their competitiveness in a global context. One of the objectives of this study is to analyze the impact of infrastructure development in companies. We aim to show the importance of investment in logistics, and how companies are benefited in several aspects – not only monetary, e.g., cost saving. *“The outcomes of investing in logistics capabilities are numerous, but are mainly increased integration with global trade and supply chains, better utilization of national transport assets, more competitive exports, and lower costs for imports, as well as increased employment opportunities”* (Rodrigue, 2012).

A paper written by the World Bank exemplifies the importance of the study: *“An adequate supply of infrastructure services has long been viewed as a key ingredient for economic development, by both academic economists and policymakers. Indeed, transport infrastructure played a central role in Adam Smith’s vision of economic development”* (Calderón & Servén, 2012).

A clear example of competitiveness related to infrastructure is the automotive industry in Brazil, where it represents 22 percent of industrial GDP and 4 percent of the total GDP (Yukio & Carvalho, 2017). Brazil is one of the main automotive manufacturers in the world, and first on the Latin-American region. But, in comparison with automotive manufacturer countries like China and South Korea, it is way behind in competitiveness. *“While Brazil has historically stimulated automakers through tax incentives to attract local manufacturing, South Korea and China invested heavily in research and development. These countries are able to generate knowledge at the different levels of supply and the automakers, while Brazil depends on the imports of technology from multinational companies (both automakers and Tier 1 suppliers). Tier 2 has a low level of innovation as most of these companies have a low capacity for investment”* (Sakuramoto et al., 2019).

Governments must acknowledge how important directly and indirectly infrastructure investment impact on the economic development of the country. *“Infrastructure investment is a central part of the stimulus plans of the Latin-American region as it confronts the growing financial crisis. This paper estimates the potential effects on direct, indirect, and induced employment for different types of infrastructure projects with LAC-specific variables. The analysis finds that the direct and indirect short-term employment generation potential of infrastructure capital investment projects may be considerable – averaging around 40,000 annual jobs per US\$1billion in LAC, depending upon such variables as the mix of subsectors in the investment program; the technologies deployed; local wages for skilled and unskilled labor; and the degrees of leakages to imported inputs. While these numbers do not account for substitution effect, they are built around an assumed ‘basket’ of investments that crosses infrastructure sectors most of which are not employment-maximizing. Albeit limited in scope, rural road maintenance projects may employ 200,000 to 500,000 annualized direct jobs for every US\$1billion spent”* (Schwartz, Andres, & Dragoiu, 2009).

Decreasing the expenditures in infrastructure is directly related with decrease in economic growth for the country and the companies operating in it. *“Opening infrastructure industries to private sector involvement can make a lot of sense, but to cut high-return public infrastructure spending and expect the private sector to fill the breach overnight is a leap of faith”* (Servén & Easterly, 2003).

The relation between public and private sector, in terms of infrastructure level, is important, and governments are a key factor to determine growth.

Political influence is extremely important for infrastructure development. *“Due to political and sometimes constitutional and legal reasons making outright privatization difficult, concessions have been the salient choice for private sector participation. They have accounted for 67% of all projects worldwide, being moreover the almost exclusive form of private sector involvement in water and transport, as well as some energy projects”* (Guasch, Laffont, & Straub, 2007).

In addition, business clusters (companies in the same sector working together) help them to increase productivity and efficiency. Indeed, creation of business clusters is part of the core strategy of infrastructure development, especially when talking about the Latin-American region, where the potential to benefit from it is significant.

Moreover, it is important to understand the mission of Logistics Management and its relevance for a company: *“the mission of logistics management is to plan and co-ordinate all those activities necessary to achieve desired levels of delivered service and quality at lowest possible cost. Logistics must therefore be seen as the link between the marketplace and the supply base. The scope of logistics spans the organization, from the management of raw materials through to the delivery of the final product”* (Martin, 2011).

The study will be based on the ideas here presented, and will give an overview compared to the rest of regions. It is important to have this comparison, because it will set a starting point for analysis and where the region should invest and improve.

2.1.5. Competitiveness theory

There are various definitions of competitiveness by economists around the world. Some of them agree and some of them disagree on the terminology used. Nevertheless, the definition by Michael Porter is commonly known to be the most accurate that encompass all the aspects of the idea. *“A nation’s competitiveness depends on the capacity of its industry to innovate and upgrade. Companies gain advantage against the world’s best competitors because of pressure and challenge. They benefit from having strong domestic rivals, aggressive home-base suppliers, and demanding*

local customers” (Porter, 1990). Moreover, Porter states that national prosperity is not inherited: it is created. He tends to disagree with classic economists in this sense. The assimilation of knowledge has become a key differential factor at the moment of measuring national competitive advantage. This advantage is “*created and sustained through a highly localized process*” (Porter, 1990).

The author defined four main attributes of a nation competitive advantage. As the he states, they create a national environment in which companies are born and learn how to compete. Each component affects and influences the others.

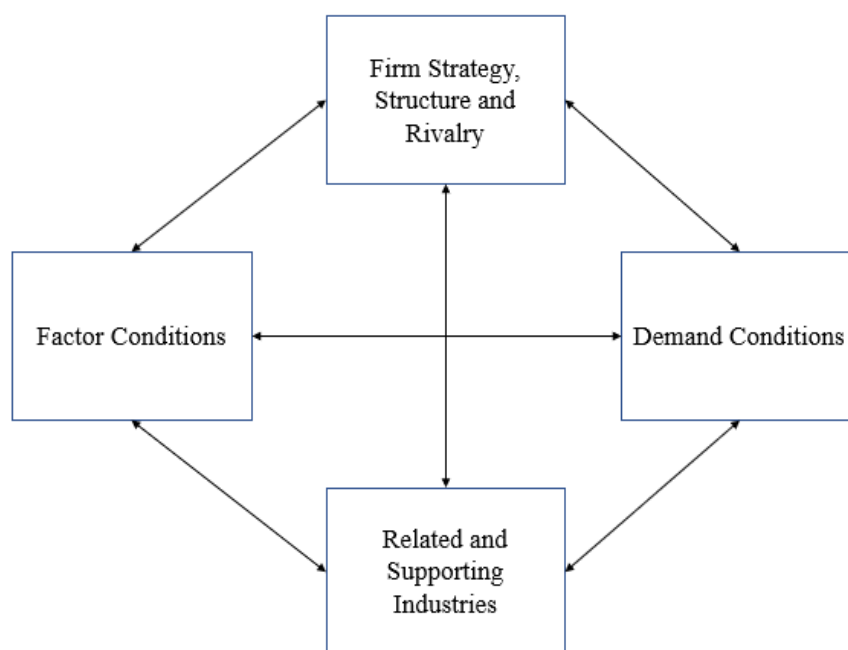


Figure 3 Determinants of National Competitive Advantage. Reprinted from *The Competitive Advantage of Nations* by M. Porter, 1990.

The success formula is to have all of them working together to achieve competitive advantage against companies and industries of other countries. Indeed, the demand conditions will be the same for all nations, so there is no competitive advantage on it. But if it is compared to between different industries the demand is different.

Analyzing the overall picture, demand is the main driver for competitiveness, and this depends on market conditions and exogenous conditions. Nevertheless, Porter (1990) explains that domestic demand conditions have an important influence on how companies perceive and interpret buyer needs: “*Home-demand conditions help build competitive advantage when a particular industry segment is larger or more visible in the domestic market than in foreign market*”.

The factor conditions are related to the classic economics theories by Adam Smith and David Ricardo, where they talk about factors of production such as labor, natural resources, capital, infrastructure, and land. According to them, the country with more availability of such resources will have a competitive advantage. But, as (Schwab, 2019) shows on the Global Competitiveness Report, countries such as Singapore and Switzerland have a complete disadvantage in this sense against countries like Brazil and Russia, but they are on the top 10 of the list. In this sense, the determinant that plays a key role is the firm strategy, structure and rivalry. Coming back to the example of Singapore, the way the government organizes industries with a clear structure and a well-defined strategy have given them the advantage.

As aforementioned, competitiveness of nations depends on several factors, but they are not determinant. The examples stated before show how a nation with few resources can have a competitive advantage with the development of knowledge and well-structured industries.

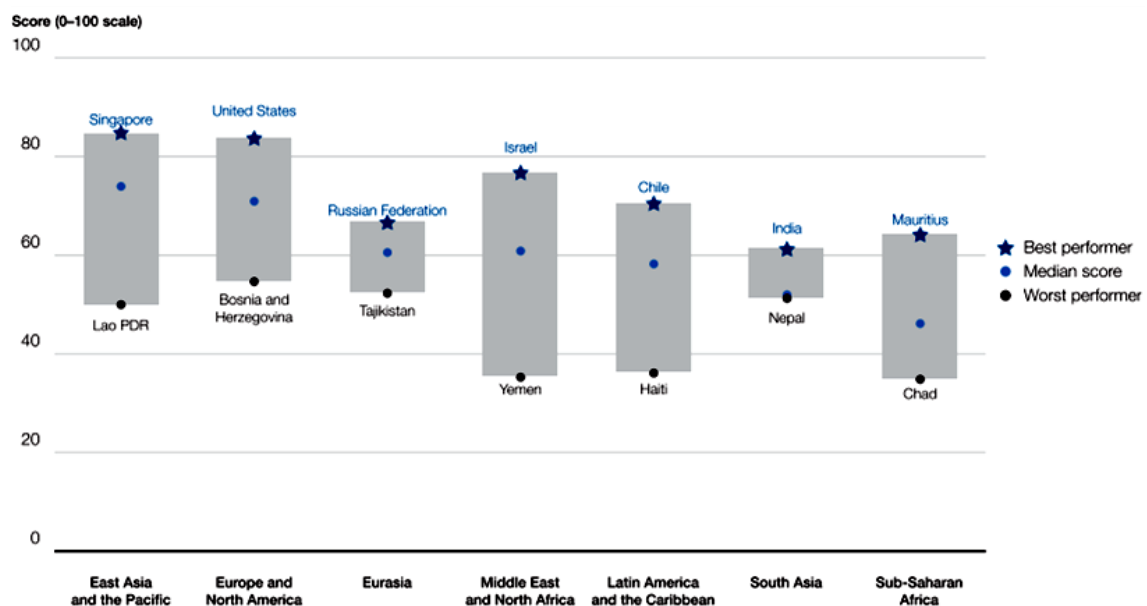


Figure 4 Competitiveness Gap within regions, Best, median and worst global competitiveness index (GCI) 2019. Reprinted from The Global Competitiveness Report 2019 by K. Schwab.

Competitiveness gaps within regions are an important aspect to understand how they are performing in comparison. The gaps can be seen in Figure 4, where Latin America has on the biggest gaps between the best performer (Chile) and the worst performer (Haiti). The median score (bit less than 60 over 100 GCI) of the region is only better than South Asia and Sub-Saharan Africa. In the case of Eurasia, there is a more

uniform distribution, where it can be inferred that differences between countries are not significant.

2.1.6. Transport infrastructure

2.1.6.1. Latin America

Latin-America transport infrastructure has to be analyzed separately, as the gaps between the best and worst performer are significant. It can be seen in Table 1 that there is direct relation between transport infrastructure and competitiveness. For example, Chile is the best performer (in the region) in the overall ranking and the second best in terms of infrastructure, just after Mexico. In contrast, Venezuela is one of the worst performers (not only of the region, but global) in both rankings. The GCI transport infrastructure includes analysis to the following indexes: road connectivity, quality of road infrastructure, railroad density, efficiency of train services, airport connectivity, efficiency of air transport services, liner shipping connectivity and efficiency of seaports services. These indexes may not apply to every country, as some of them don't have railroad infrastructure.

Countries	GCI Global	GCI Transport Infrastructure	
		Score (over 100)	Ranking
Argentina	83	47,7	78
Brazil	71	45,6	85
Chile	33	56,6	54
Colombia	57	43,8	92
Ecuador	90	52,8	64
Guatemala	98	37,2	114
Honduras	101	43,1	95
Mexico	48	57,4	51
Panama	66	57,8	48
Peru	65	42,4	97
Salvador	103	45,3	86
Venezuela	133	24,7	136

Table 1 GCI global rankings and GCI Transport Infrastructure scores and global rankings (GCI) 2019. Retrieved from The Global Competitiveness Report 2019 by K. Schwab.

It is important to understand the performance of neighboring countries, such as the Mercosur countries like Argentina and Brazil. They both have similar values, as both of them have big territory to cover with transport infrastructure. In contrast, In the Andean region, Chile, Peru, Ecuador and Colombia, each country has different performance. In the case of Peru and Colombia, they both have the main airports hubs for South America. Jorge Chavez Lima airport and El Dorado Bogota airport have 22¹ and 31² million passengers per year. The strategic location of both airports and investment in airport infrastructure transformed them in the regional leaders.

2.1.6.2. Ecuador

As shown in Table 1, the global GCI of Ecuador is one of the worst of South America. Important pillars such as institutions, macro-economic stability and business dynamism influence the overall ranking, leading the country to low performance.

In terms of business dynamism, Ecuador is in 130th position of a total of 140 countries. In the last 12 years, Ecuador has invested heavily in transport infrastructure. Due to high inflows of money because of high oil prices between 2003 and 2013, the government was able to cover all these investments. After 2013, the government has been obliged to decrease the investment, from 1,7% to 0.38% of GDP³. Nevertheless, the government was able to build important road infrastructure, new airports and seaports.

¹ CORPAC SA. (2018). *Información Estadísticas Anuales 2018* [Statistical Report] Retrived from <http://www.corpac.gob.pe/Main.asp?T=5434>

² Aviación Civil de Colombia. (2018). *Estadísticas Trafico de Aeropuertos Diciembre 2018* [Statistical Report]. Retrieved from http://www.aerocivil.gov.co/atencion/estadisticas-de-las-actividades-aeronauticas/_layouts/15/WopiFrame.aspx?sourcedoc=/atencion/estadisticas-de-las-actividades-aeronauticas/Estadsticas%20operacionales/Estadisticas%20Trafico%20de%20Aeropuertos%20Diciembre%202018.xls&action=defaultaeronauticas/Estadsticas%20operacionales/Estadisticas%20Trafico%20de%20Aeropuertos%20Diciembre%202017.xls&action=default

³ INFRA LATAM (2018) *Datos de Inversión en Infraestructura Economica* [Statistical Report] Retrived from <http://es.infralatam.info/dataviews/252248/transporte/>

Transport Infrastructure Indexes	Score	Global Ranking
Road Connectivity 0 - 100 (best)	64,2	100
Quality of Roads Infrastructure 1 - 7 (best)	4,9	35
Railroad density	N/A	N/A
Efficiency of train services	N/A	N/A
Airport Connectivity 0 - 100 (best)	39,9	83
Efficiency of air transport services 1 - 7 (best)	4,9	58
Liner Shipping Connectivity 0 - 100 (best)	24,8	62
Efficiency of Seaport Services 1 - 7 (best)	4,5	55

Table 2 GCI Transport Infrastructure Sub indexes scores and global rankings (GCI) for Ecuador, 2019. Retrieved from The Global Competitiveness Report 2019 by K. Schwab.

The score of quality of roads infrastructure is one of the best in the region. During the period previously mentioned, the main focus of the government was to build roads and highways with high quality. Nevertheless, the connectivity of these roads is still not efficient, due to some factors like geography and political interest of local governments to maintain roads crossing through their jurisdiction.

As it was mentioned before, airport connectivity in Ecuador is far from the best possible, due to strong competition from the neighboring countries Colombia and Peru. They have less operational costs and best connectivity with other regions, especially with North America. But, in terms of airfreight, Ecuador has been able to build one of the biggest airport perishable centre in the world. This responds to the export flower industry that, in terms of volumes, is the second biggest exporter worldwide. The cargo terminal has over 13.000 square meters, with cooling warehouse to keep the quality of the product intact. It can receive 48 trucks at the same time, divided in 24 loading docks. The top cargo airlines in the world – such as Qatar Airways, Emirates, KLM and Turkish Airlines – have operations in the country. During high seasons for flower export, like Valentine’s Day and Mother’s Day, the production can almost multiply by five. The infrastructure was built to cover these peaks without affecting the daily operation.

2.2. Knowledge gaps

The literature that has been reviewed before has some knowledge gaps. Some of these gaps exist because of the nature of the studies. Some others are result of a deep analysis of the studies, and there is where this analysis becomes important.

First, we couldn't find literature that deeply analyses the effects of the Dutch disease phenomenon in Ecuador. Some texts cover how it has affected the Latin-American region, with some information from Ecuador, but they lack a more detailed analysis to determine causes and consequences in each country. Furthermore, all of the previously cited sources explain the situation, but do not cover how to solve it. A few examples were found on how countries were able to solve it (Chile), but there is no specific measure or strategy suggested.

Second, the Global Competitiveness Report 2019 analyses transport infrastructure of each country with indexes calculated from data collected with interviews and surveys. The data can be subjective, as some of the data collected is from opinions.

Lastly, it was nearly impossible to identify studies of the competitiveness of Ecuadorian companies. Moreover, in relation to transport infrastructure, it was not possible to find any study addressing the topic. So, there is no clear reference picture to compare the results of this research. As a consequence, every conclusion and recommendation that may emerge from this work is opening new paths – and this is good (as it puts clarity on previously unexplored phenomena), but it is also a weak point, since there is no possible comparison to other results.

3. Research Methodology

The research methodology will use a qualitative approach, based on interviews with key people connected to the subject.

3.1. Qualitative approach

The choice for a qualitative approach is justified by the need of deep analysis, and this would be very difficult with a quantitative research. Furthermore, the own nature of this study suggests that personal interviews would give a better ground to identify many details that likely would never be perceived in a quantitative study.

3.1.1. Methodology issue

A methodology issue that may arise is that the data collected may be subjective, as it depends on the opinion of people. Another issue with the is that infrastructure is compared within countries with all the characteristics like quality of roads, quality of electricity supply and mobile-cellular telephone subscriptions.

3.2. Definition of the research scope and sample

The extent of this research is the Latin American region and specifically the Ecuador, and it reaches both company and government levels, due to the fact that transportation infrastructure is built by governments in a joint effort with different industries.

The list of people to be interviewed was selected according to the contribution and important insights they can provide to the study. To give the study a better consistency, the sample comprehends different people from different industries and position within the companies they work. This assures both deepness and broadness of primary content for further analysis.

3.3. Definition of the questionnaire

The questions are divided into 3 main sub-categories. The first (questions 1, 2, 5 and 6) is related to influence of transport infrastructure on the competitiveness. The second (questions 3 and 4) addresses the issue of logistics costs into a company. The third category (questions 7 to 10) is related to government participation and influence. Lastly, questions 11 and 12 talk about the dependence of the Latin-American countries on the exploitation of natural resources.

1. How much do you think that transport infrastructure might influence the competitiveness of Ecuadorian companies in the global market?
2. What are the possible causes of such influence? In other words, please mention situations and processes that may impact the competitiveness in such scenario.
3. How important is logistics costs for the competitiveness of a company in the local level?
4. How important is logistics cost for the competitiveness of a company in the global market?
5. To which extent do you think that having a better national transport infrastructure is a competitive advantage against companies doing the same in other countries/regions?
6. Besides transport, which other infrastructure factors you believe may influence the competitiveness of a company?
7. How do you see the role of the local government regarding the development of the transport infrastructure for the economic development of their industries?
8. Could you mention some actions policies etc., so the Ecuadorian government could boost the competitiveness of companies in the global market?
9. Does the political aspect influence the competitiveness of a company?
 - a. In case of yes, in which way?
 - b. Is it different in Ecuador than in other countries of the region?
 - c. Is it different in Ecuador than in other countries of the world?
10. How much do you think the competitiveness level of a company is affected by corruption cases in the development of transportation infrastructure?

11. How do you think the overdependence of exploitation of natural resources in Ecuador may have affected the development of other industries?
12. How do you think Ecuador economy can decrease its dependence from natural resources?

3.4. List of interviews

The list of people to be interviewed was selected according to the contribution and important insights they can provide the study.

3.4.1. Brief description of the interviews

To assure a broad and complete vision, the sample comprehends different people from different industries and position within the companies they work:

1. Pablo Cantos: General Manager at Wings. The company represents two cargo airlines in Ecuador: Qatar Cargo Airways and LAS (Lineas Aereas Sudamericanas). His vast experience in the airfreight industry will provide good insights about the topic and a direct feedback from one of the biggest cargo airlines operating in Ecuador.
2. Juan Abel Echeverria: Chief Operations Officer at MTA Corp (Multimodal Transport Associates). With more than 30 years of experience in the air freight industry in Ecuador, Juan Abel is among the most recognized key players in the industry. He has worked in many important positions, such as general manager of the perishable center in Quito and board member of Quito airport corporation.
3. Diego Espinosa: General Manager at Agrocoex. They are one of the main farms with flowers production in Ecuador, exporting principally to markets like United States and Russia. He will provide the study a different perspective from the first two interviews. With more than 30 years of experience in the field, Diego is an expert in the flowers business, with a direct relation with the logistics infrastructure.
4. Eduardo Alvarez: Sales Chief at Lufthansa Cargo in Quito. Eduardo has more than 20 years of experience in the air freight industry. He has a broad idea of the topic, as he has worked directly on the operational side before working for the sales department. He understands the link between logistics and the success of an export-based company.

5. Jose Luis Suarez: Sales Manager at Emirates SkyCargo. Jose has more than 10 years of experience in the air freight industry. Previously he worked at Lufthansa Cargo and Latam Cargo. Working on different airlines gives him the unique knowledge of the airfreight industry.
6. Alejandro Ribadeneira: General Director for IDE Business School, one the most respected business schools in the country. Alejandro has more than 30 years working experience in different industries and companies. Most recently, he was Board President of “Universidad de Los Hemisferios”. His point of view from an academic perspective will help the study to have a broader knowledge of the topic.
7. Martin Obando: Chief Operations Officer at BuenPlan (Ecuadorian ticketing company). BuenPlan is a company that provides services to event organizers such as ticketing (online and physical), security and digital marketing. Martin is one of the founders and can provide a different analysis of the situation with a perspective from a start-up.
8. Sandra Bajaan: Sales Manager at Hapag Lloyd. Hapag Lloyd is one of the biggest sea freight companies in the world. In Ecuador, they have an important market share. She has more than 25 years in the company in different positions. From operations to sales, she can provide good insights about the sea freight industry.

3.5. Methodology for data analysis

As this a qualitative study, it is better to split the methodology into three categories. First, the definition of sampling. In difference from a quantitative approach, the sampling has a more open ended and less structured protocols. This means the sampling is more flexible. Second, the tools used for this study are interactive interviews. The interviews are performed face-to-face or via telephone. This helps the study to get more authentic answers and reduces the risk of misinterpretation. Third, the data collected allow to understand different experiences and points of view from the people interviewed, thus giving a broader and more detailed picture.

In terms of data validation, the study will follow four steps. The objective is to convert raw data into something meaningful and readable. The first step is to validate data. In this step, the goal is to find out, as far as possible, if the data was collected without any influence or bias. Inside this step, it is important to analyze the following: screening

(be sure the respondents were chosen as per the research criteria), procedure (check if the data collection procedure was followed) and completeness (ensure the respondents answers all questions of the questionnaire).

The last step is to organize and compile the data collected. As a matter of fact, this is one of the most important steps, as its groups and tries to assign values to responses of the interviews – when possible, as some answers are subjective and cannot be assessed.

4. Results and findings

This chapter will expose all the results and findings after doing the interviews and taking the key points. The topics discussed here are wide as respondents are from different industries and positions.

4.1. Main findings

4.1.1. Innovation and Competitiveness

Everyday new business models are arising due to high competition and demands from new generations. Technology development has driven this new big wave of innovation, and we have seen powerful corporations disappear because they were not able – or too slow – to react to new market needs. Some of the most known examples from different industries are: Kodak, Nokia, Research in Motion (Blackberry), Blockbuster, Myspace, Yahoo. The list can go on with hundreds of companies that disappeared. Some of the companies mentioned before have not ceased to exist, but they lost the significant market share.

For example, Nokia, a Finnish multinational technology company that was founded in 1865, was famously known by the development of consumer electronics, in specific mobile phones. By the first quarter of 2007, Nokia had 50% of the global market share. By the January 2013 Nokia lost its position to less than 5% (Krigsman, 2018).

According to Martin Obando, this is a classic example on how corporations may not be able to adapt to the new market trends and consumer's demands. He explains that his company, BuenPlan, is trying to reshape consumers mind with the introduction of technology to a traditional market like events tickets. The tickets market has been controlled, for years, by a single company called TicketShow. What they basically did was to print tickets for events and sell them at physical locations. People were used to buy the tickets at TicketShow store and then go the event and wait long queues outside the venues in order to enter. When he started his business, people did not understand the service. His company offers ticketing service online to broad range of events. People are

able to buy tickets and enter the events only by showing a QR code with averages queues of less than 2 minutes, due to its simplicity. He points out, people were kind of resistant and still wanted to have physical tickets, because they did not trust a digital one. Over the years, the market has changed, and people like to use BuenPlan services.

He describes innovation as vital for a company: *“Innovation is the key to success, companies that are not able to constantly innovate are doomed. Everyday we see new market trends and technology development”*. Martin emphasizes the importance of innovation, because (according to him) transport infrastructure must constantly innovate too. A clear example – he says – is the new mobility companies, such as Uber and Cabify. Transport infrastructure is not ready for these new technologies. Roads, traffic lights and highways are still designed with development of the beginning of the 20th Century. He also mentions, the new wave of self-driving cars will shape the future of mobility. Google has been developing this technology in the past few years, and claims they will reduce traffic accidents by 90%, wasted commute time and energy by 90%, and the number of cars by 90%. According to Google, the study will allow to cars go faster, operate closer and choose more effective routes. The current losses are estimated to be US\$ 101 billion per year in wasted productivity and added fuel costs (Mui, 2013).

4.1.1.1. Entrepreneurship in Latin America.

Martin is sure that innovation is in the core of the competitiveness of a company. But Latin America is still behind regarding innovation. Data is not particularly positive. In 2014, the region presented only the 10% of all the patents registered only by South Korea (Lederman, Messina, Pienknagura, & Rigolini, 2014). In addition, only 2,4% of all the investment done in research and development occurs in Latin America, in comparison with 37,5% invested only in United States and Canada. *“Part of the problem is the limited innovation in Latin American companies, that blame it to the lack of vision of business leaders of the region. This leaders attribute it to the anachronistic legal framework that penalizes creativity”* (Openheimer, 2014).

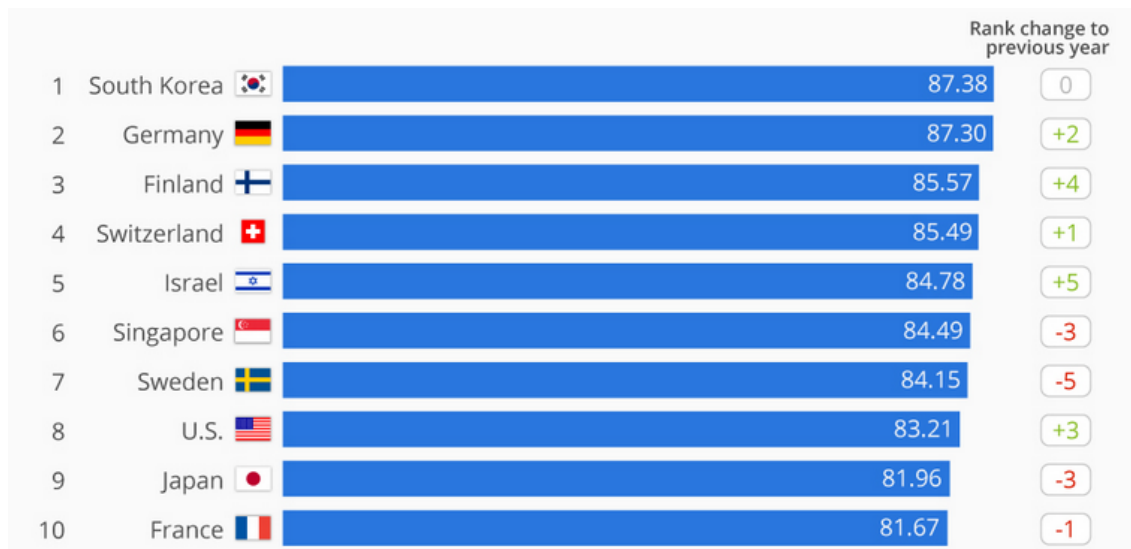


Figure 5 The most Innovative Economies in the World. Reprinted from Statista, The Most Innovative Economies in the world by K. Buchholz.

Note: Index scores for the most innovative economies worldwide in 2019 (100=most innovative). Takes into account R&D spending intensity, patent activity, efficiency of tertiary education, value-added manufacturing, productivity, high-tech density and researcher concentration.

As shown in Figure 5, the 10 most innovative countries in the world also are in the top 20 countries in terms of competitiveness according to the World Economic Forum report. It can be inferred there is a direct correlation between both characteristics. *“Geography has always played a central role in the organization of economic activity. Cities first formed as trading hubs for agricultural and manufactured goods. Many of them emerged where trading routes intersected or where goods moved from one mode of transportation to another. With the onset of the industrial revolution, cities became the center of large-scale industrial production. As industrialization advanced, some expanded into megacities, while others saw their fortunes decline”* (World Intellectual Property Organization, 2019). The previous statement explains clearly how geography influenced innovation and how some cities were not able to catch the new wave of innovation.

Juan Abel Echeverria agrees with the mentioned before and he explains that government has an important role. *“They have to be the main driver of innovation, giving entrepreneurs all the help they need”*. Pablo Cantos remarks that there is no local cargo airline in Ecuador. He attributes this to the difficulties of Ecuador to open a new company. Martin Obando recalls he needed to wait around 6 months in order to have everything to start his business.

One clear example of a government institution that is boosting innovation and turning it in real life business that scale at fast speed is The European Innovation Council. They have an accelerator programme, that gives financial support to start-ups. The institution is still in the early stages and is planned to be functioning by 2021. The European Union has granted 10 billion Euros to the Council to operate.

4.1.2. Differences among industries

According to one commonly known classification, there are 4 main different types of industries and with-in each one there are several sub-types. In order to make understandable the analysis, only the main categories will be mentioned.

First, is the primary industry. Basically, what this industry does is extraction of natural materials such as oil, gas, ore, etc. Industries such as farming, mining and forestry are an example. The secondary industry refers to the manufacturing industry, which transforms raw materials into final products. The basic example of a company in manufacturing is a car factory. Third, the service industry. The rule to be part of this industry is that the company is not extracting raw material or making a physical product. They are the providers of services to the first two. An example of this could be health services, banks or consultancy agencies. The fourth industry is the newest one. It is called the high-tech industry. Companies in charge of research and development are part of it.

Having clarified these main differences between industries, it will be easier to make the analysis. There has been a common agreement between the respondents that it is important to differentiate among industries. in order to analyze the main topic. Is not the same to talk about a flower exporter company (primary industry) compared to a service provider (tertiary industry) company, like a bank or an e-commerce. According to the interviewed Juan Abel Echeverria, the most affected by the development of transport infrastructure are the ones that transport physical goods. For him, e-commerce companies (can be considered as quaternary industry) may also be affected by this, but it depends on the business model. Another interviewed, Eduardo Alvarez, stated that industries that are mainly exporters depends directly on infrastructure: without it, they would not even exist. But, for local companies offering services, in some cases it may be not vital.

The interviewed Diego Espinosa, as flowers exporter, agrees with the discussed before. He thinks his industry is one of the most affected by transportation infrastructure. As freight is a big amount of the cost of his product outside in the international market, having higher costs than direct competitors, as Colombia or Ethiopia, decreases competitiveness.

As mentioned before, innovation is vital for a company to be competitive. Different industries have changed dramatically since the smartphone era. For example, Eduardo Alvarez mentions that nowadays is possible to book a truck to transport goods in a mobile app. There is no need to fill documentation or call in advance. *“There are several exporters that face problems at the moment of finding third parties to hire internal ground transportation. Most of the times, it is expensive and inefficient”*. This new services that are emerging are the response to low levels of transport infrastructure. These companies have been able to adapt and overcome difficulties.

According to Jose Suarez, every industry needs logistics. It does not matter if it is the agricultural or the fintech industry. *“Both of them are influenced by logistics. In the case of fintech, there are companies dedicated to Supply Chain Finance. They depend directly on the dynamics of the logistics sector”*. Supply Chain Finance permit to finance early payments to suppliers, improving cash flows (Dash, 2017).

Another big difference that needs to be analysed is the modes of transportation. Airfreight and Sea freight industries are completely different. According to Sandra Bajiña, the dynamics of each one is something not everyone is aware of. She states even if both are transportation industries, each one has its own way of work. For example, the most important characteristic is timing. Sending cargo by ship will take up to 10 times more than sending by ship. In addition, capacity is the second most important characteristic. By sea freight, it is possible to carry up to 100 times more cargo. By this extent, Sandra Bajiña explained that the sea freight industry is the most important for the economy of a country. According to her, at least, 85% of the cargo arriving and leaving the country is by sea.

To sum up, modes of transportation have their different characteristic and the development of infrastructure is key for their success. Recently, a new port has been opened with higher capacity for bigger ships. This allowed new logistics companies to

arrive to the country with better services and lower costs. Competitiveness of local companies will increase in the mid and long term.

4.1.3. Analysis of logistics costs

There is no doubt about the logistics costs influence on the competitiveness of a company. All of the respondents agreed on this question. The key difference here, according to Jose Luis Suarez, is that companies have to analyze how to tackle this issue. Some of them have developed strategies of economy of scale. The higher the level of production output, the lower is the cost. He says that it is the same with logistics costs. He has been working for years for Cargo Airlines, and he describes it like this: *“the bigger the volume, the lower the rates. As cargo airlines are interested in high volumes, they are willing to sacrifice some margins”*.

Pablo Cantos also agrees with Jose Luis. He thinks that one of the biggest competitive advantages of flowers exporters are the volume they are sending abroad. Indeed, Amsterdam is the main hub for flowers auction in the world. As he describes it, companies with big volumes are nearly impossible to compete with. They have reached an efficiency level where only a few other companies are able to do it. Eduardo Alvarez has more than 20 years in the industry, and he reminds that logistics companies handling perishables in Europe – like IP Handlers and JVPUT (biggest logistics brokers for perishable handling) – did not exist in the beginning. The local producers were supported by the government, so the flower industry in Holland can improve even more.

As mentioned before in 2.1.6.2, in the year 2013, Quito opened its new airport outside the city. The initial budget for the construction was US\$ 448 million, but it finally cost US\$ 600 million. In the beginning, this change impacted the logistics costs of every industry that depends on the airport. The flowers industry was one of the affected, as all the infrastructure – such as warehouses and commercial offices – were built around the old airport, in the north center part of the city. In the beginning, the logistics costs for flower exporters raised, as ground transportation costs were higher due to the location of the new airport.

Old Airport	New Airport
-------------	-------------

Monthly Salary Transportation Driver	\$400.00	\$450.00
Extra Time	-	\$150.00- \$200.00
Fuel Flower Farms Tabacundo	\$15.00 per trip	\$13.50 per trip
Fuel Flower Farms Latacunga	\$15.50 per trip	\$16.50 per trip

Table 3 Logistics Costs for flower exporters comparison in 2013.

Source: Diego Espinosa (General Manager Agrocoex)

Flower farms in Quito have two main locations. The first location is called Tabacundo. This is located 66km north of the city. The second, Latacunga, is located 103km south. Almost 95% of the flower farms in Ecuador are located here. Table 3 explains the raise in logistics costs for flower exporters at the beginning of operations of the new airport. Several farms thought the change of the airport was affecting them as this initial costs affected the final price of the product in the international market, generating loose of competitiveness.

Freight forwarders were affected too as they had to invest in new warehouses and labor costs as employees had to be transported to a location 40km outside the city. Only few companies were able to build in advance new warehouses. The rest of them, continued to use the old warehouses located close to the airport even 2 years after the airport was opened. This resulted in an increase of costs for them too.

	Old Airport	New Airport
Operational Cost	0.12 per-kilo	0.15 per-kilo

Table 4 Logistics Costs for Freight Forwarders comparison in 2013.

Source: Pablo Cantos (General Manager Qatar Airways)

The increase of the operational costs of freight forwarders was around 3 cents per kilogram. This increase includes the raise of employees' salaries, investment in new warehouses and offices. Taking into consideration that the volume exported is around 600 tons of flowers per week, the increase has affected the final prices of the logistics costs. This increase was transferred to the final customer.

Pablo Cantos mentions that it is important to analyze the entire picture. He agrees that, in the beginning, the costs increased, affecting the competitiveness. But, as he says, this was only on the short term (around 2 years), as the flower industry was adapting its operations to the new infrastructure. On the mid and long term, benefits surpass the short

term losses. One of this tangible benefits, according to Pablo, is the new arrival of international airlines like Emirates and Qatar Airways. They would not have been able to enter the Ecuadorian market with the previous airport. Both airlines operate bigger cargo airplanes that need better infrastructure to operate. He explains that these new airlines offer new destinations as part of their service. Ecuadorian flowers were able to enter new markets, such as Australia and Middle East, with competitive airfreight costs. In the past, only few airlines were providing this service to these destinations with rates 3 or 4 times higher than Colombia (1st competitor of Ecuador in terms of flower exportation).

4.1.4. Analysis of International Airfreight: Latin America & Ecuador

Airfreight has an important impact on the global economy. It accounts about 35% of the total global trade, despite being only 1% of the total volume trade. IATA (International Air Transport Association) estimates that in one single day 80000 boxes of flowers and 657 million packages are transported worldwide. In addition, the total value of cargo shipped is US\$ 18.6 billion. They estimate that freighter fleet will grow by 70% by 2030 (IATA, 2015).

Airfreight traffic in Latin America has been, in a great percentage, perishable goods. Juan Abel Echeverria states that airlines have a special interest in the airfreight industry in South America. As perishables have a fast rotation, there is a constant demand for airfreight services. Echeverria states: *“For a cargo airline to be profitable, it is important to maintain regular volume, rather than charging higher rates with long periods of time between shipments”*. For example, Pablo Cantos, general manager for Qatar Airways in Ecuador, explains that they started with only 1 flight per week from Quito to Amsterdam. He explained that having an only flight was expensive, as they had to pay the entire crew, and lodging with all the meals for 1 week. *“Qatar needed at least 3 flights per week to be profitable”*. In this sense, Colombia and Ecuador are the best market to service, as they have continued exports of flowers, every day. Nowadays, Qatar Airways is operating 5 flights per week, transporting at least 45 tons of flowers per flight.

As much as perishables exports are growing in the region, Juan Abel Echeverria thinks that this does not add any value to the economy. He explains that the region has to change the strategy of exporting only flowers or fruits. As mentioned before, innovation is the key for success. There is a new trend in the airfreight industry that is transforming

the way businesses are operating. *“Nearly 90% of business-to-consumer e-commerce today is delivered by air. Remarkably, this percentage grew from 16% to 83% in just the six-year period between 2010 and 2016. This tremendous growth, over such a short period of time, provides a concrete testament to the direct relationship which exists between air transport capability, and e-commerce profitability”* (International Air Transport Association, 2018).

Juan Abel Echeverria is sure that this is the way for the region to innovate and change its dependence on flowers and fruits. As mentioned before, the growth of business to consumer e-commerce has been exponential in the last years. Companies like Amazon have already started tests in Brazil, and they are looking closely to the rest of the region. Juan Abel Echeverria thinks that e-commerce will eventually boom in Ecuador and transport infrastructure will play a key role. *“Ecuador is still behind the e-commerce trend, as it still has tremendous problems with bureaucracy and taxation”* states Echeverria. The Ecuadorian government is still trying to protect local producers by imposing high tariffs for imported goods. Yet, a large number of tariffs imposed are for products that have a direct competition in the country. For example, electronic devices, such as smartphones and tablets, pay up to 35% of tariffs. Echeverria mentions that this makes no sense, as there is no local industry producing such devices. The objective of the government is to increase fiscal incomes through these tariffs. Consequently, the final consumer is the one that is paying the rise in prices and affecting his/her power acquisition.

Furthermore, the Ecuadorian government imposes tariffs on agricultural supplies up to 9.6%. Nevertheless, the government has sent a new law bill to the Congress to approve. The new law proposes to eliminate this tariffs to help the agricultural sector. In addition, they want to reduce the VAT (value added tax) for small trucks used for flower production (El Telegrafo, 2019). Diego Espinosa says it is a good measure, but it a little bit too late. In order to see the real benefits of this new law, it will take around 2 years. He compares that Colombia did the same many years ago. Now, Colombian flowers have great advantage in the international markets due to its lower cost.

4.1.5. Long term investment in transport infrastructure

As explained in 4.1.3, benefits from investment in transport infrastructure could be difficult to see in the short or midterm. As industries depend on the development of it, it takes a period of time to see what is the real outcome of these investments. As seen on the overview of the Ecuadorian transport infrastructure in 2.1.6.2, the country is not lagging behind and, compared to its neighbors, has developed some important projects. Roads, airports and seaports have given competitiveness to the local industries against its competitors. Pablo Cantos explains that the cargo facilities of the Quito Airport are able to support high seasons peaks like Valentine's Day and Mothers Days. *“Back in the old airport, several tons of flowers were left behind because the airport was not able to support such big volumes”*. The flower industry was affected and there was not an optimal solution to the problem. Some airlines were operating from alternative airports, but the infrastructure was even worse than in the old Quito airport. The new airport has enough capacity to attend these new high peaks with full capacity. Pablo explains that now is even possible to load two big airbus 747-800F at the same time in the landing platform.

Nevertheless, it is important to continue investing on more major projects to scale benefits on the long term. Connecting economic hubs through investment in the country is important, as it reduces costs and time.

4.1.5.1. Highway between Quito and Guayaquil

Quito and Guayaquil are the two main cities of Ecuador. Guayaquil has an important role in the national economy, as it holds the two major ports of the country. Quito is the capital and its logistics importance is related with the airfreight operation. Juan Abel Echeverria suggests that it is possible to construct a direct highway between the two cities. But, due to political interest of local municipalities (holding the traffic of the current highway), the project has not been able to succeed. With the new road, the change in terms of costs and time could be dramatic. The time to travel could be reduced from 8 to 3 hours. He states that a big amount of internal trade of goods in the country is transported on this route. Eduardo Alvarez says that economic interests from certain sectors have raised difficulties to the development of the project. He is sure the local aviation sector would be certainly affected, as passenger flights between Quito and Guayaquil could be replaced by travels with the new highway. Currently, the time to

travel between the two cities is around 2 hours and 45 minutes (45 minutes' flight + 1-hour boarding waiting time + 1-hour travel time to the airport). He says that the construction of such project would affect several other industries that have influential power over the politicians who take the decisions.

Alejandro Ribadeneira thinks the investment in this project have been an answer to the inefficient policies of the government. In this sense, the private sector has invested waiting to have returns in the future with these projects. But there are some problems, as their majority are owned by private companies. The government cannot establish policies to benefit the local industries, as they do not have a relevant participation. Alejandro also comments that governments could establish new operational rates for international transport companies, such as airlines and shipping company. This can attract them to come to Ecuador, and have more frequencies would reduce the cost of transportation of Ecuadorian goods to the global market.

Sandra Bajaaná thinks it is crucial for the Sea freight industry the development of this project. Nowadays, all the shipments arriving to the ports in the coastal side of Ecuador are transported by land to Quito. If the transit time can be reduced to 3 hours, efficiency will increase drastically. According to Sandra, the big problem nowadays is the land transportation of goods between Quito and Guayaquil. The logistics costs can increase up to \$400 per container for this transportation. She states that this cost can be reduced up to \$150, giving the opportunity to companies to reduce costs and invest that amount in innovation.

4.1.6. Government long-term common strategy

Almost every respondent agrees that, for the development of competitiveness of Ecuadorian companies in the global market, it is vital to create of a long-term common strategy. Eduardo Alvarez mentioned how Colombia has been able to consolidate itself as a leader of textiles and coffee exporter due to its unique branding.

The image that Colombian coffee has in the international market positions itself as one of the best. He states that the quality of the Colombian coffee is not the best in the region. Brazilian and Ecuadorian coffee have better quality, according to experts in the

field, but the way the Colombian government was able to position the brand in the mind of the consumers has been a source of competitive advantage.

Juan Abel Echeverria mentions that Ecuador has never had a common strategy to be competitive in the international markets. Due to its small size in terms of population and territory, the government should try to invest on added value products and services. He remarks the extraordinary examples of Singapore, Chile or Costa Rica.

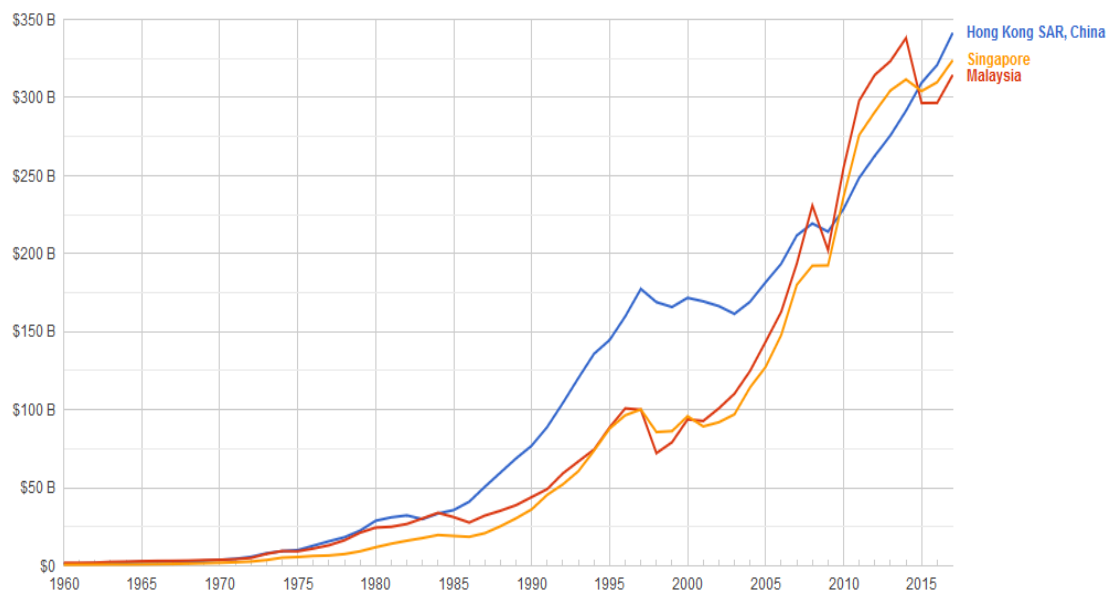


Figure 6 Singapore GDP 1960 to 2015. Reprinted from World Bank Data.
Note: Figures compares GDP with neighbors in the region (Hong Kong and Malaysia)

Singapore has been able to completely change its economy by reforming the entire country. Under the leadership of Lee Kuan Yew, most commonly known as Harry Lee, Singapore lived an economic miracle. Lee ruled the country as prime minister from 1959 to 1990. Due to its several economic reforms creating openness to the global market and attracting immense inflows of foreign investment, the country is now on top of the most innovative and competitive countries in the world.

Figure 6 gives us a clear example of how Singapore was able to dramatically change its economy and transform the lives of millions of its citizen. Juan Abel Echeverria has remarked that Ecuador is able to do the same as Singapore. He compares both countries in terms of size and economies (Singapore before the economic miracle), and says that the only difference was a clear understanding of what the country needed with a long term strategy. Since 1976 its GDP growth has averaged 6,8% per year. In addition,

they have clear goals of infrastructure development, where it accounts around 30% of the GDP (The Economist, 2018).

4.1.7. Latin America successful Cases

It was remarked during the interviews almost by every respondent that there are examples in the region Ecuador could follow, as they had the same conditions before they change their economies. Chile and Costa Rica have shaped their economies with structural economic reforms and investments on the long term.

4.1.7.1. Chile

The country has experienced an economic miracle after the worst recession it experienced during the so-called Lost Decade in Latin America, in the 80s. Hernan Buchi (minister of finance of Chile from 1985 to 1989) is known to be architect of the miracle, as he imposed several economic reforms. The most important reforms were: first, heavy reduction of public sector expending by reducing social expenditure. Second, reduction of fiscal taxes to local companies, in order to generate employment where the VAT was reduced to 2%. In third place, devaluation of the currency against the US Dollar. This helped to increase exports and decrease imports. Fourth, privatization of several companies owned by the government, to give them productivity. The privatization was done in different economic sectors like steel, electricity, communications, sugar and Airlines (what resulted today in LATAM). Lastly, the decrease of import tariffs.

Some may argue that, during this era, human rights were violated, as the country was under a military dictatorship. Augusto Pinochet ruled the country between 1974 and 1990. These are not topics to be discussed in the study, but the fact is, Chile was able to change its economy, despite of how they did it. For Pinochet, it was important to liberalize the economy under the influence of the theory developed by the “Chicago Boys”. They are also known to be the ones who transformed the country economy.

Together with its economy liberalization, Chile has been investing in transport infrastructure to cope with the necessities of the country. According to the Global Competitive Index 2019, Chile ranks on the top 10 of road connectivity and is the best ranked for overall transport infrastructure in the region.

4.1.7.2. Costa Rica

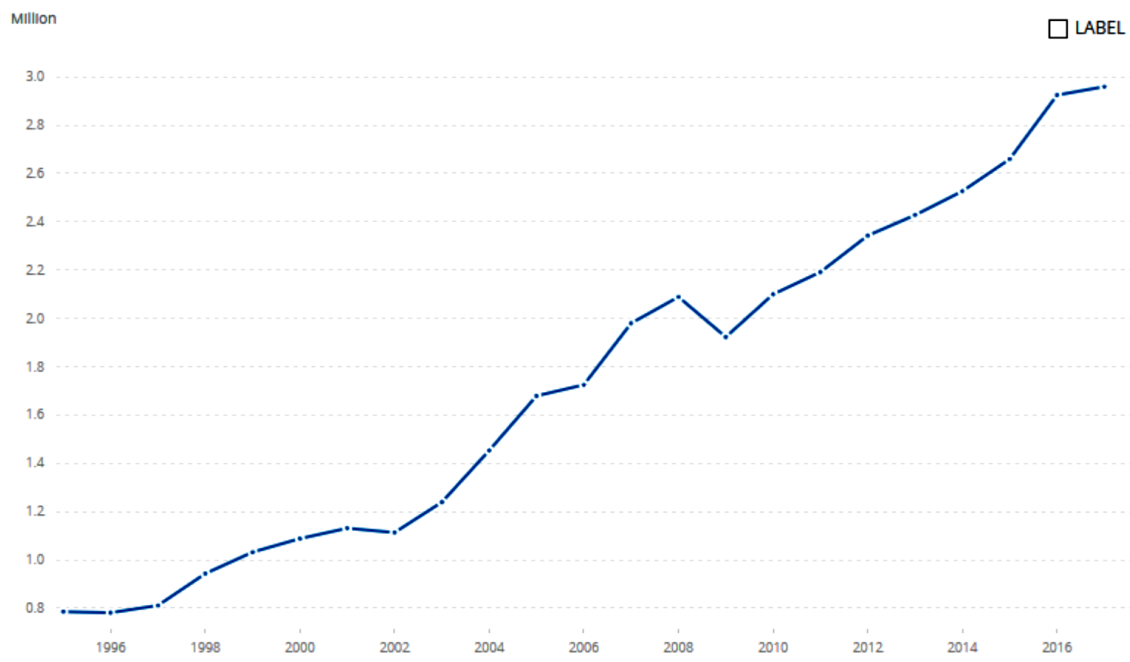


Figure 7 International tourism, number of arrivals - Costa Rica Reprinted from World Bank Data.

Note: Index is in millions of tourist arrivals from 1995 to 2017.

This Central America country is one of the examples that has been able to increase competitiveness while lagging behind at transport infrastructure development. In terms of the competitiveness, Costa Rica ranking position is 62th. Over the years, the country has been improving the score of the pillars for competitiveness. Juan Abel Echeverria explains that the country has focused on developing their tourism industry. Costa Rica has transformed on one of the most visited places in the region by foreigners. *“Is a clear example of how a country with a common strategy can develop an industry that was not even known before”* remarks Juan Abel.

Figure 7 shows clearly the trend on this increase of foreign visitors in the last 20 years. Nowadays, San Jose airport has several international airlines from all over the world. The most important ones are KLM, Lufthansa, American Airlines, and United. These airlines connect the majority of arrivals shown in figure 7 from United States and Europe.

4.1.8. Corruption in development of transport infrastructure

Alejandro Ribadeneira agrees on the idea that corruption is one the biggest problems of the region. The last biggest scandals of corruption of the world happened in Brazil, with the discovery of the corruption mechanism that Odebrecht and other big construction companies were using to hide bribes in big public contracts. The investigation led to discover that the corruption was not only in Brazil, but in several countries in Latin America. As a result, many politicians (including former presidents and vice-presidents, congressmen and local authorities) were sent to jail. Martin Obando thinks that corruption still can be found in our daily lives. As an entrepreneur in Ecuador, in several occasions he had encounters with corruption. When he was founding his company at the institution in charge of it, he was offered to accelerate the process by bribing some officials.

Pablo Cantos states that corruption in transportation infrastructure has happened for decades. Every time a project to develop infrastructure was on process, several companies were making millions out of money from tax payers. He said people were becoming rich from one day to another just by founding constructions companies. For Eduardo Alvarez, corruption is a disease the region maybe will never be able to rid of. He claims: *“the moment we get rid of corruption, we will reach 1st world countries, like Singapore did”*.

One important issue for Pablo is that local authorities have to be elected by merits and not because of political influence. He remarks the example of authorities that were caught because of corruption cases. The former director of the Civil Aviation in charge of controlling all the civil air traffic in the country has been put in jail after the discovery of a shipment of 1,2 tons of cocaine at one of the main airports in Ecuador. Police has found out that he was the leader of a whole criminal organization with connections with Mexican organizations linked to Chapo Guzman. Pablo states that this affects the reputation the Ecuadorian aviation industry has in the world. *“Is impossible to negotiate better conditions with international aviation organizations when this is still happening in our country”* states Pablo.

All the stated before has been an inhibitor for infrastructure development. The money that is lost into corruption can be used to improve new projects.

4.1.9. Overdependence of natural resources

Alejandro Ribadeneira describes that since the beginning of the history of the country, Ecuador has been dependent of the exploitation of natural resources. He says this was because of the exploitation during the colony times, when Europeans demanded large amounts of natural resources, due to the beginning of the industrial revolution, at the middle of the 18th century. The region was the source of commodities for the development of the European industries. For Juan Abel Echeveria, this was the moment first world countries were able to take a technological advantage against Latin America. He states that the region has not been able to reach the technological improvements due to all the years the region was subdued by the Spanish and Portuguese empires.

Eduardo Alvarez analyzes it in a different way. He thinks that being an entrepreneur in Ecuador is too complicated because of bureaucracy and lack of economic support. As a consequence, people has opted to invest on the comfort zone, that is commodities. Countries like United States and Europe have been able to develop innovations clusters like Silicon Valley or Berlin, where start-ups can develop their ideas with government support.

As mentioned before, the overdependence on natural resources have made the Ecuadorian government defocus from investing in other industries such as services or manufacturing. On the long term, this could be a problem as oil is not renewable and is estimated to finish by 2050.

4.2. Variance in expected results

The respondents have provided different points of view, according to their experiences and knowledge of the industries they work for. The main intention of the study was to collect various ideas and check how is the situation of the competitiveness of companies related to transport infrastructure.

One variance they arouse in relation to the expected results was the lack of optimism by the respondents at the moment of defining possible solutions for the issue discussed. While talking to all of them, it was possible to realize there might not be a

possible future scenario where the government supports entrepreneurs and create a long-term strategy to face the problem the country is currently facing.

Nevertheless, not all the possible outcomes are negative. Countries like Singapore were able to change this situation and become part of the top 5 most competitive countries.

The study will suggest future questions in order to cover these variances in the results. This will help the study to have a broader and objective analysis of the issue.

5. Conclusions and recommendations

This chapter will consolidate all the ideas discussed before and give a final review to all of them. The conclusions will try to respond all the questions discussed in the questionnaire. After this, final recommendations will be proposed, trying to suggest solutions to the issue analyzed.

5.1. Conclusions

As it could be predicted, development of transportation infrastructure is essential for a country, in order to be competitive in the global market. In fact, logistics costs are still an important part of the total cost of a product. The Latin-American region still lacks a well-structured development, and companies from different industries are suffering from it.

Some industries suffer more from this lack of development. It is important to distinguish, in order to have a good analysis about the issue. The study was able to determine that industries exporting physical products – especially the perishable ones, like flowers and fruits – depend directly on transport infrastructure. Indeed, this makes sense, as they use this infrastructure to transport their products.

But some other industries are benefiting from low levels of development. As mentioned before, BuenPlan exploited the traffic issue in the city, where people have to travel longer times to buy event tickets. They were able to solve this problem by offering virtual tickets, so people can buy it online and go directly to the concert or theatre.

The political aspect in Ecuador also plays an important role. As seen before, politicians tend to think on the short term and take decisions only thinking on the immediate acceptance of the people. The development of infrastructure, most of the times, takes years to finish, and people may think that the government is wasting money. According to the interviews, people tend to over evaluate the short term. Instead of heavy investments in infrastructure, they likely will prefer reduction of taxes and new government benefits, such as subsidies. Moreover, corruption is directly linked to the political aspect. In the last years, the region has discovered several corruptions cases with

construction companies that were developing infrastructure projects, including (but not only) transportation.

Innovation plays a key role in terms of competitiveness. As explained before, Latin American region has not been able to catch up with the global pace. It is not surprising that the most innovative countries are the ones who are the most competitive. Every day, hundreds of new patents are being developed and registered around the world. Latin America contributes an insignificant percentage of them.

As analysed before, Singapore is an extraordinary example on how countries with several limitations can achieve success. Singapore has an estimated population of 5.6 million people, compared to Ecuador, with 17 million people. This data reflects that it does not matter the number of population in order to be competitive. Singapore has been successful introducing liberalizing reforms, opening the country to the worldwide trade. It has been improving the quality of life of all of its citizens. One of main benefits of the liberalization of the economy was the development of transport infrastructure. The people in charge of it were clever enough to understand that developing infrastructure will provide them the ability to transport all their goods in a cheaper and faster way. They also understood that this investment will start providing them benefits on the mid and long term.

As we have seen before, Chile was able to liberalize the economy while developing good transport infrastructure. The leaders of this transformation started to build all it was necessary for their industries to grow. It is true, that the country still depends on the export of raw material, in specific mining materials like copper. On the other hand, they are the only country in Latin America that created a sovereign fund with the surplus from the copper prices during the 1990. Currently, the fund is called Economic and Social Stabilization Fund and sums 2.58 billion US Dollar. It was created in 1985 with the name of copper stabilization fund, with the objective of stabilizing revenues and overcome fiscal deficits.

All the mentioned facts tend to give a clear idea that competitiveness depends on some sort of degree of the development of infrastructure. Nevertheless, the study has been able to identify a good example that tells the contrary. Costa Rica is today one of the leaders in the region in terms of tourism despite of having a bad transportation

infrastructure. The government has been able to implement a long-term strategy to position the name of Costa Rica on tourists looking for sustainable options. The country has experienced a sustained increase of visitors every year. The interesting thing is that they have been able to do so with a good transportation infrastructure development. According to the Global Competitive Index, Costa Rica is in 88th position out 141 countries in terms of infrastructure. While Ecuador ranks 62 in the chart, Costa Rica has developed a competitive advantage as a country to focus their strengths towards tourism.

Sea freight industry is a really important part of the economy. The majority of trade depends on this industry, and the development of ports infrastructure will generate the increase of competitiveness of local companies due to reduction in logistics costs. In addition, it creates more connectivity with more countries around the world.

As aforementioned, the new port called “Posorja” will generate competitiveness for local companies. But real benefits will be only able to see on the mid or long term (3 to 5 years). Is up to the local authorities to keep investing and improving infrastructure for this industry.

5.2. Recommendations

If the Ecuadorian government wants companies to be competitive in the global market, it will have to work in different areas of the economy. Likewise, Ecuadorian companies will have to develop strategies without the total dependence of the state.

First, the local government has to work developing a common strategy as a country. As showed before, countries that established a robust strategy over the mid and long-term were able to jump out of the bottom group of undeveloped countries. In order to that, politicians will have to stop thinking on the short term and establish policies that foster innovation.

Ecuador has to stop depending only on the exploitation of natural resources. The study has revealed clearly how the dependence on the exportation of commodities hinders the development of other economic sectors like services and manufacturing. These affected sectors are the ones that give added value to the output of a country. The example of Singapore is clear: they developed a strategy of being the financial and innovation hub

of the south east Asia. This gave them a competitive advantage until today. Costa Rica is doing it by focusing on developing tourism services. Peru has done the same positioning Peruvian cuisine as the best of the world. Therefore, the government should establish new strategies where it gives the opportunity to entrepreneurs to develop new businesses ideas.

Ecuador has great potential, due to its perfect location on the Ecuador line, that provides 12 hours of sun light all year long. This has helped raw materials to have an outstanding quality versus other in the rest of the world. For example, some experts may agree that the best chocolate bars in the world are made with Ecuadorian cacao. European companies have taken the exceptional quality of the Ecuadorian cacao and transformed it in a product with value added. Nowadays, there are local companies trying to replicate this, producing chocolate bars with special flavors. They have also worked on special packaging with a good marketing campaign, but the industry is young and is still trying to convince the customer in different markets.

Ecuador should have established a fund with the surplus of the oil sales during the increase of prices from 2003 to 2014. The barrel jumped up to three times the prices it was in the beginning but the government led by Rafael Correa decided to implement social programs and increase public expenditure. The entire surplus went to finance these projects, and the current economy is suffering the consequences, as oil prices has dropped to predicted levels. As said before, the governments have no influence on the cost of commodities, and they depend on the worldwide supply and demand to establish the price.

Diego Espinosa mentioned that there are some flower wholesalers in United States that have next day delivery services for their customers. He explains that, for Ecuadorian flowers, is impossible to reach these wholesalers, as transit times are higher than one day. It is calculated that flowers needs at least 3 days in order to reach a customer in United States, in comparison with Colombia that needs an only day. They say that Colombia has a competitive advantage in terms of time and flexibility. Colombian farms can deliver the same day flowers for the flights. Instead, in Ecuador it is necessary to deliver flowers at least the night before the flight. The government should establish policies in terms of delivery speed, in order to be competitive with Colombia. For example, they could reduce the excessive bureaucratic process for exportations they currently have. As well as, implementing a system were flower exporters could deliver the same day to the airport.

Furthermore, the government should choose trained and capable people to lead its institutions. They should have proper competences for the position they are working for, and have a clear and common goal. Politics will never stop existing, but Ecuador should stop electing authorities that are in charge of doing political patronage and seeking personal success instead of country development.

5.3. Unanswered questions

There are some unanswered questions that appeared during the realization of the research. First, the study was not able to determine if the competitiveness of an Ecuadorian company is affected by external factors like global economic crisis or natural disasters. As the main focus of the study was to understand the role of logistics costs, the study did not cover what was mentioned before.

The second issue that the study was not able to determine is what multinational companies are doing when they operate in several different markets. One example could be Coca Cola, which have production in Ecuador and its logistics costs are higher than other neighboring countries, due to higher tariffs and slow bureaucratic procedures. The study was not able to determine how this type of businesses deals with such issue.

Third, the study was not able to determine if the lack of competitiveness is related to a cultural aspect. Some of the respondents believed that the cultural aspect could play an important role, but they were not able to define up to which degree of influence.

Lastly, the study did not define a political view that governments should pursue as its subjective to every person. Some persons might think liberalization of the economy is the correct path, but some might think this could dramatically damage it. It was not the intent of the study to suggest any political point of view, but rather state what happened with verified data.

5.4. Future questions

Taken into consideration the unanswered questions stated before, it is important to point some suggestions to complete the analysis. The following questions can be part of future studies:

1. How much an external event, like an economic crisis or natural disaster, can affect the competitiveness of a company?
2. How are the neighboring countries of Ecuador (Colombia and Peru) dealing with the same problem of dependence of natural resources exploitation?
 - i. Have they been able to develop other industries? If yes, how?
3. How Multinationals operating in Ecuador deal with higher logistics costs than other countries?
4. Does the cultural aspect play an important role at the moment of analyzing competitiveness of Ecuadorian companies?

Transport infrastructure development is key for a country to be competitive. The study analyses the case of the Ecuadorian companies and could be done on the private and public sector to tackle this problem. Countries like Singapore have done it with a clear long-term strategy. Moreover, there are clear examples as Chile and Costa Rica where they have established strategies aligned with their core competences. The future of the competitiveness of Ecuadorian companies depends on several factors. As analyzed before transportation infrastructure have a strong influence in the competitiveness of Ecuadorian companies in the global market.

6. Annexes

Ecuador - Global Competitiveness Index 4.0 2019

Economy Profiles

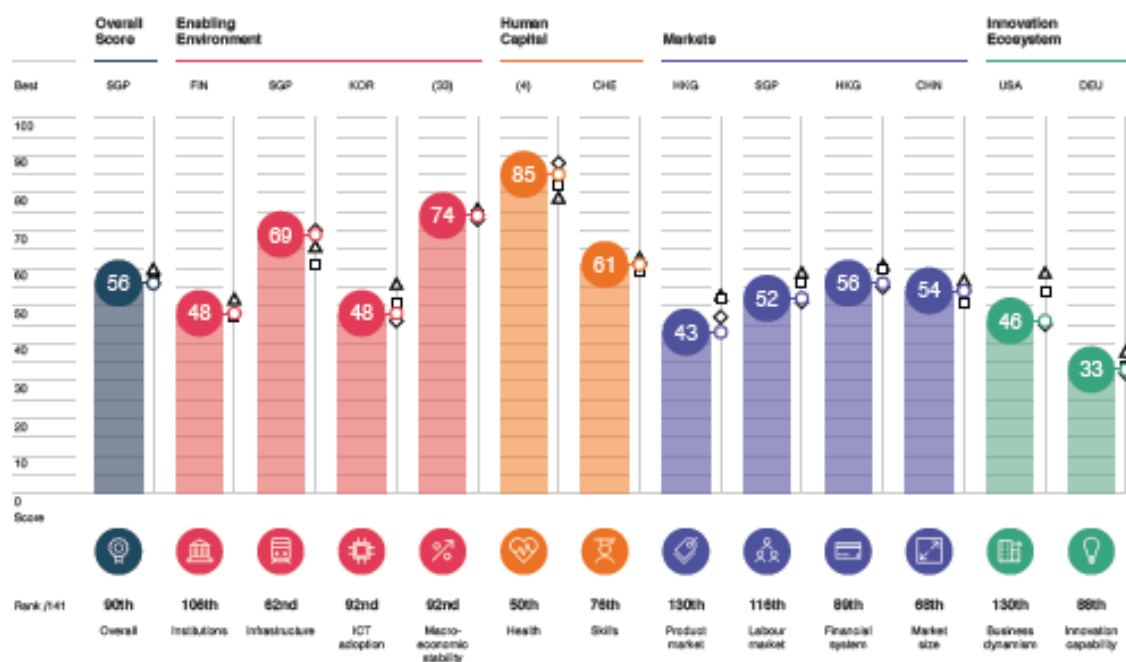
Ecuador

90th / 141

Global Competitiveness Index 4.0 2019 edition

Rank in 2018 edition: 86th/140

Performance Key ◇ Previous edition ▲ Upper-middle-income group average □ Latin America and the Caribbean average
Overview 2019



Selected contextual indicators

Population millions	17.0	GDP (PPP) % world GDP	0.15
GDP per capita us\$	6,315.5	5-year average FDI inward flow % GDP	1.0
10-year average annual GDP growth %	2.7		

Social and environmental performance

Environmental footprint gha/capita	1.3	Global Gender Gap Index 0-1 (gender parity)	0.7
Renewable energy consumption share %	13.8	Income Gini 0 (perfect equality) -100 (perfect inequality)	44.7
Unemployment rate %	3.9		

Chile - Global Competitiveness Index 4.0 2019

Chile

33rd / 141

Global Competitiveness Index 4.0 2019 edition

Rank in 2018 edition: 33rd/140

Performance
Overview 2019

Key ◇ Previous edition ▲ High-income group average □ Latin America and the Caribbean average



Selected contextual indicators

Population millions	18.5	GDP (PPP) % world GDP	0.36
GDP per capita US\$	16,078.7	5-year average FDI inward flow % GDP	5.4
10-year average annual GDP growth %	3.2		

Social and environmental performance

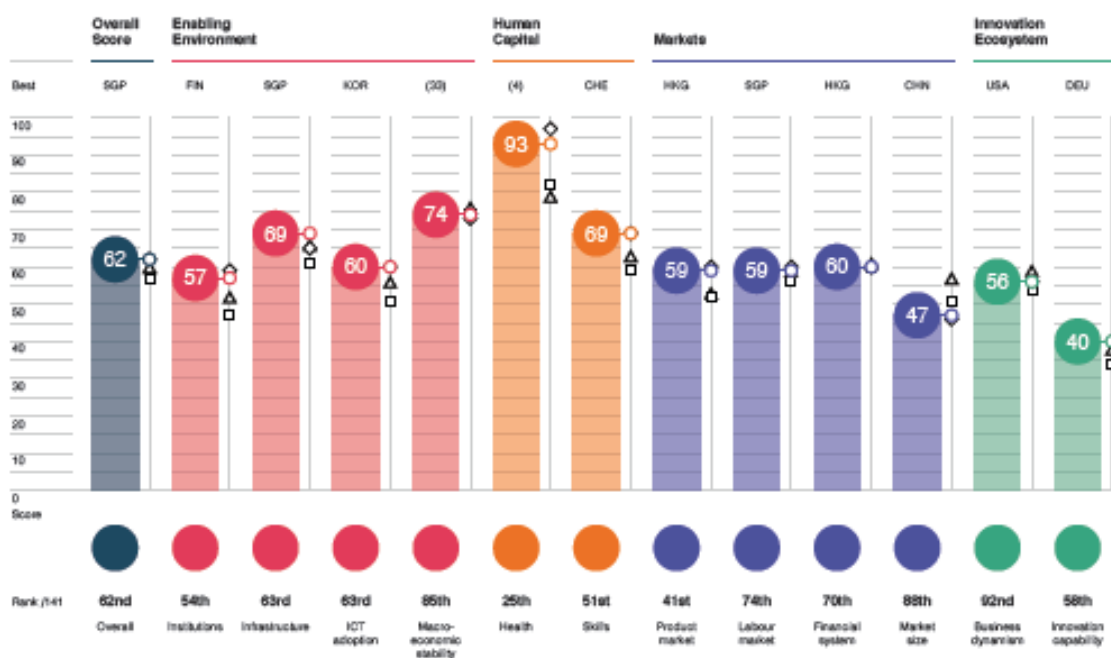
Environmental footprint gha/capita	2.7	Global Gender Gap Index 0-1 (gender parity)	0.7
Renewable energy consumption share %	24.9	Income Gini 0 (perfect equality) -100 (perfect inequality)	46.6
Unemployment rate %	7.2		

Costa Rica

62nd / 141

Global Competitiveness Index 4.0 2019 edition

Rank in 2018 edition: 55th/140

Performance Overview 2019 Key ◇ Previous edition ▲ Upper-middle-income group average □ Latin America and the Caribbean average


Selected contextual indicators

Population millions	5.0	GDP (PPP) % world GDP	0.07
GDP per capita us\$	11,744.4	5-year average FDI inward flow % GDP	4.6
10-year average annual GDP growth %	3.3		

Social and environmental performance

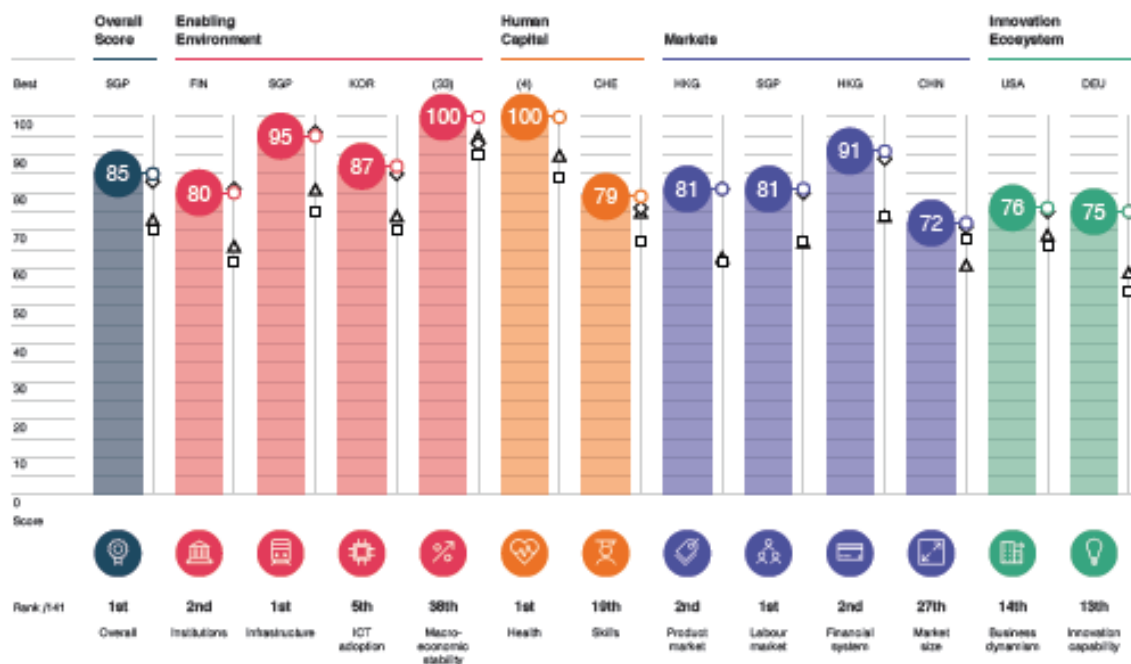
Environmental footprint gha/capita	2.4	Global Gender Gap Index 0-1 (gender parity)	0.7
Renewable energy consumption share %	38.7	Income Gini 0 (perfect equality) -100 (perfect inequality)	48.3
Unemployment rate %	8.1		

Singapore

1st / 141

Global Competitiveness Index 4.0 2019 edition

Rank in 2018 edition: 2nd/140

Performance Overview 2019 Key ◇ Previous edition ▲ High-income group average □ East Asia and Pacific average


Selected contextual indicators

Population millions	5.6	GDP (PPP) % world GDP	0.42
GDP per capita US\$	64,041.4	5-year average FDI inward flow % GDP	22.5
10-year average annual GDP growth %	4.6		

Social and environmental performance

Renewable energy consumption share %	0.7	Global Gender Gap Index 0-1 (gender parity)	0.7
Unemployment rate %	3.8		

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