Andrews University
School of Education

IMPACT OF THE REGIONALIZATION OF UNIVERSITY OF ANTIOQUIA IN THE DEVELOPMENT OF HUMAN CAPITAL AND IMPROVEMENT OF THE EQUITY IN THE REGION OF URABÁ

A Dissertation
Presented in Partial Fulfillment
of the Requirements for the Degree
Doctor of Philosophy

by
Monica Castaño Mejia
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<tbody>
<tr>
<td>ASEAN</td>
<td>Association of South East Asia Nations</td>
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<tr>
<td>AUN</td>
<td>National University Affirmation</td>
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<tr>
<td>CEDLAS</td>
<td>Centro de Estudios Distributivos, Laborales y Sociales</td>
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<td>CERES</td>
<td>Centros Regionales de Educación Superior</td>
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<td>CESU</td>
<td>National Council of Higher Education</td>
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<td>DANE</td>
<td>Departamento Administrativo Nacional de Estadística</td>
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<tr>
<td>ECTS</td>
<td>European Credit Transfer System</td>
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<tr>
<td>ECLAC</td>
<td>Economic Commission for Latin America and the Caribbean</td>
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<tr>
<td>EHEA</td>
<td>European Area of Higher Education</td>
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<tr>
<td>ERASMUS</td>
<td>European Region Action Scheme for the Mobility of University Students</td>
</tr>
<tr>
<td>ICA</td>
<td>Instituto Colombiano Agropecuario</td>
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<td>INER</td>
<td>Instituto de Estudios Regionales</td>
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<tr>
<td>IPM</td>
<td>Multidimensional Poverty index</td>
</tr>
<tr>
<td>MEN</td>
<td>Ministerio de Educación Nacional</td>
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<tr>
<td>OECD</td>
<td>Organization for Economic Cooperation and Development</td>
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<tr>
<td>SEAMEO</td>
<td>Asia is the South East Ministers of Education Organization</td>
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<tr>
<td>SEDLAC</td>
<td>Socioeconomic Database for Latin America and the Caribbean</td>
</tr>
<tr>
<td>UNESCO</td>
<td>Organización de las Naciones Unidas para la Cultura, las Ciencias y la Educación</td>
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CHAPTER 1

INTRODUCTION

Background

Adam Smith, who is considered the father of economics and the author of the masterpiece in economics and philosophy, An Inquiry into the Nature and Causes of the Wealth of Nations (1776), stated that “the desire of bettering our condition is a desire which, though generally calm and dispassionate, comes with us from the womb and never leaves us till we go into the grave” (Smith, 1776, p. 5225). Education, in general, will be the channel that brings opportunities to accomplish that desire of “bettering [the] conditions.” According to Macerinskiene and Vaiksnoraite (2006), the investment in higher education provides multiple benefits to society, including personal and family economic benefits, a workforce with better and higher skills to perform the jobs and increase productivity that, in the end, translates into a higher impact on the economy, the equity, and the development of human capital.

The strategic plan for 2019-2022 of the Secretary of National Education (Ministerio de Educación Nacional [MEN], 2018) of Colombia presents three higher education strategic axes: the access to higher education for all (equity), the consolidation of facilities for rural development of the territory (human capital), and peace consolidation and adaptable educational models. These strategies of the Colombian government are intended to promote equity and development across the country. In particular, the regionalization of Higher Education in Colombia has been contributing to
the development of human capital development across the country, as well as better access to higher education for all, providing those opportunities that we desire as individuals.

The University of Antioquia started promoting equity and human capital development in the rural regions of the state of Antioquia years before the regionalization of higher education projects became a key element for the state of Antioquia and the university. It was in 1995 that the project officially started. The decade of the ’90s was characterized in Colombia by economic liberalization (Leibovich & Caicedo, 1995; Londoño Rendón, 1998). The government of former President César Gaviria was distinguished by a unilateral economic liberalization, exposing the productive sector to a spate of imported products, generating an economic slowdown in that decade, and ending it with negative economic growth.

With the death of drug lord Pablo Escobar Gaviria, money in the underground economy was drastically cut, generating a shortage of liquidity and increasing the slowdown in the economy. The consolidation of paramilitary groups generated a wave of violence throughout Colombia and in many regions of Antioquia due to the dispute over territories with the Colombian guerrillas (Aramburo, 2009; Echandía Castilla, 2001; Huhle, 2001). The region of Urabá in Antioquia, one of the regions with the highest agricultural productivity and an agroindustry hub in the country, was one of those most affected by the conflict, the economic slowdown, and disputes between drug traffickers over routes to transport drugs (Bejarano, 1988; Eraso, 2016). Although these were turbulent times throughout the country, and mainly in Antioquia and the Urabá region, the vision and purpose of the University of Antioquia to promote equity and human...
development led it to invest in the Urabá region and opened one of the first campuses of the University outside the city of Medellín. Administrators and faculty were convinced that through education, the community could be recovered and a transformation of the Urabá region was possible.

The Peace Agreement between the government and insurgent groups outside the law was signed in 2016. The regions impacted by the war are in the process of transformation and are rebuilding as communities (Eraso, 2016). The region of Urabá is one of those that are fighting to recover socially and economically, and the influence of higher education has been essential in that transformation. The Colombian government has committed to rebuilding the nation, the regions, and the victims, and the region of Urabá is one of those regions with thousands of victims.

**Statement of the Problem**

Higher education facilitates the development of sciences, technology, and culture impacting not only urban, but also rural areas; in Colombia, rural areas are less populated regions where citizens do not have easy access to education, and the levels of poverty are higher than in the central cities. The National Council of Higher Education (Consejo Nacional de Educación Superior [CESU])\(^1\) stated that the regionalization of public higher education impacts the development of the regions through the policies that promote equity and academic programs pertinent to the region (CESU, 2014, p. 105). Extending

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\(^1\)CESU is the office that supports and advises the MEN in all areas related to the quality of education.
tertiary education to the regions has become a source not only of human capital, but also of technology, research, and culture.

Public higher education in Colombia is led by the National University, created in 1867 with 55,124 students enrolled; the second most important public university is the University of Antioquia, founded in 1803 with around 38,000 students and 1,800 faculty. The University of Antioquia Development Plan of 1995 to 2006 contemplated five strategic areas: scientific, technological, humanistic, cultural, and artistic development, with five objectives for each governmental sector to be implemented individually by sector. One of those objectives was directly related to regionalization: “To take the University to the regions and increase the coverage of educational and university extensions” (Universidad de Antioquia, Oficina de Planeación, 1996, p. 68). The University adopted this goal and developed the regionalization plan with the support of local authorities. Regionalization became a strategic area of the university and, since 1995, the University of Antioquia has been impacting the regions of the State of Antioquia through the regionalization project. By 2020, the University was offering more than 55 undergraduate programs in the regions, plus five undergraduate online programs and eight graduate programs; 29 of the programs were created exclusively and according to the region’s needs and resources. In addition, the University has brought research to the regions that support and impact local businesses and farmers. Cultural activities for students are extended to the community, and campus activities are open to all, bringing experiences to the community that otherwise would never be possible in rural areas. Today, the University is analyzing the experience of regionalization and questioning how the higher education journey in the region of Urabá has responded to the needs of the
region in equity and human capital development. There is no known report at the present
time that has assessed the impact of the project, in particular in the region of Urabá.
Planning the future of the University in the regions and measuring the impact of
regionalization of higher education in two strategic areas for the university (equity and
human capital development) have become a priority for the University of Antioquia.

**Research Question**

Expecting a continuation of the regionalization program of the University of
Antioquia, and recognizing the need for improvement in equity and human capital
development to contribute to the economic growth of the region of Urabá, I formulated
this research question: Is there a relationship between the regionalization strategy of the
University of Antioquia and the development of human capital and improvement of
equity in the region of Urabá?

The secondary research questions are these:

- **Research question 1:** What is the relationship between the improvement of
equity and the regionalization of the University of Antioquia in the region of
Urabá?
- **Research question 2:** What is the relationship between human capital
development and the regionalization of the University of Antioquia in the
region of Urabá?
- **Research question 3:** Do significant differences exist in equity and human
capital development based on gender and socio-economical level?
The Purpose of the Study

The main purpose of this study was to find whether regionalization of higher education contributes to regional development through the impact on human capital development and improvement of equity.

Rationale for the Study

The region of Urabá in the state of Antioquia is one of the most important development hubs of the state and the country. The Urabá region is recognized for being rich in natural resources and it is an agricultural development hub for Colombia. Called the “Corner of America,” the region has a plantation area of bananas of 35,440 hectares with exports valued at US$585 million dollars per year according to the Instituto Colombiano Agropecuario (ICA, 2021), positioning Colombia as the fourth exporter worldwide. However, the Multidimensional Poverty Index (IPM) in the region varies between 28% and 62.7%, and analphabetism varies between 14.7% and 24.5% in the region (Departamento Administrativo Nacional de Estadística [DANE], 2022). The conditions of the population are not the best. However, higher education has been changing lives and opening opportunities for all.

The region currently has 18 institutions of higher education. The presence of the University of Antioquia has changed the view of future generations since 1995. Showing the impact of the regionalization of higher education in the improvement of equity and human capital development may assure the investment of the government and private sector in higher education as a key element in the goal of making this region the corner of America.
The University, local city administration, state government, and the MEN have understood that higher education is the most viable source of human capital development; therefore, they have stated common policies and goals and have been working on increasing human capital development as a strategy for regional development. Consequently, it would be helpful to attempt to assess the relative effect of the regionalization strategy of the University of Antioquia. Measuring the impact of the regionalization would provide strong data and arguments to generate changes and achieve common goals, not only at the local, but also at the national level.

While other studies have been done about the regionalization of higher education in Latino America and Colombia (Mesias, 2017; Ospina, Bohorquez, & Cuartas, 2013; Rama & Cevallos, 2016), there are no reliable data analyses after more than twenty years of promoting and encouraging the development of human capital and improvement of the equity in the regions of Antioquia to understand to what extent the regionalization policies and strategies have impacted the region of Urabá.

**Conceptual Framework**

The conceptual framework of this study focused on the Education policies of the Colombian Government, the University of Antioquia’s policies regarding regionalization, and the theory of regionalization and its influence on equity and human capital development. Knight (2012) argued that regionalization of higher education is “the process of building closer collaboration and alignment among higher education actors and systems within a defined area or framework called the region” (p. 36). The education
ecosystem, in its entirety, must be involved in bringing education to the regions; it is not
only the effort of the University itself, but also of all the stakeholders.

According to the University Development Plan (1996) for the period from 1995 to
1997, the University established five strategic factors. The first factor was the scientific-
technological, humanistic, cultural, and artistic development. Within this factor, the
university established a strategic goal that opened the doors to the regionalization project:
to bring the University to the regions and increase educational coverage and extension
Universidad para un nuevo siglo de las luces,1996) developed for the University to
achieve the development plan 1995–1997 contemplated six institutional policies
established as a synthesis of its scope and development commitments: regionalization,
modernization, qualification, acculturation, social expansion, and internationalization.
The University developed the scope of the regionalization policy as follow:

The University expands its regional presence and consolidates as a factor of
equity in the state of Antioquia, in particular, with the sectors that do not have
opportunities to access the benefits of higher education. With zoning, the
University allows to rescue the cultural values of the regions and give them a
greater dimension in the national concert, which triggers an element of unity; and
it has to be too an engine in social transformation, since the arrival at these
regions is to modify the living conditions of the population, influencing
development with new models of productivity, with diversification and with the
use of available resources, and where educational programs and production
centers can become true axes of progress. (Universidad de Antioquia, Oficina de
Planeación, 1996, p. 11)

Understanding this scope of the University for the regionalization policy is an
opportunity to bring equity and development to the region throughout education. Figure 1
gives a visual representation of the conceptual framework of this study and how
regionalization, equity, and regional development can function, thus providing a description of the impact of the University’s regionalization project.

Figure 1. Linking regionalization of higher education, equity, and human capital development

Linking Regionalization of Higher Education and Human Capital Development

Arbo and Benneworth (2007) argued that higher education institutions are called to conduct research and education, but also that they contribute actively to the economic, social, and cultural development of their regions (p. 9). Regionalization is explained through the involvement and impact of higher education actors in the growth of the regions.
Neave (2003) stated that the regionalization of higher education is “the devolution of responsibilities, previously exercised by the central government, to a series of subnational administrative units and/or authorities” (p. 146). One of those responsibilities in this study is considered as human capital development, promoted by the regionalization of higher education and supported by the local authorities of the region and the public university.

The University of Antioquia, as a pioneer and leader of regionalization in Colombia, noted the following:

Considered a factor of development, the University must increase the quantity and quality of opportunities for human beings, training it for work, economic development, and preparing it for science and technology, but it must also guarantee the socialization and transmission of the culture, the development of personality, identity and the construction of a sense of nationality, equity and the overcoming of poverty. (Universidad de Antioquia, Instituto de Estudios Regionales [INER], 2002, p. 53)

As noted, the regionalization of higher education is strongly linked with the development of human capital to contribute to the development of the regions as shown in Figure 1.

According to INER (2002), universities should accompany the local and regional development, but understand that they do not supplant the responsibility of the state. Institutions of higher education should be perceived as agents of change: “It will be a factor for regional development and will make viable its articulation to the territory so that the inhabitants can appropriate the social capital that it represents and thus collectively build region and nation” (INER, 2002, p. 12). In this study, regionalization of higher education will be considered a factor of change explained by the development of
human capital through the number of students enrolled, the number of alumni working, and the number of alumni that stayed within the region after graduation (Figure 1).

Linking Regionalization of Higher Education and Equity

Morley (1997) posited that in organizations or institutions like universities, there are normally not many strategies to move equity policies to day-to-day implementation. Regionalization has become one of those strategies whereby universities, with expressly clear policies, can make changes in the equity of gender, race, income, and access to higher education, among others.

Marginson (2011) claimed that if higher education institutions want to increase and foster socio-economic equity intentionally, two relevant strategies must be considered: “advance ‘fairness’ by changing the composition of participation, bringing higher education into line with the ideal model of a socially representative system. The second strategy advances ‘inclusion’ by broadening the access and completion of under-represented groups” (p. 23). For the purpose of this study, regionalization will be explained by equity thorough the measure of gender equality and the measure of salary improvement of the alumni as represented in Figure 1.

Linking Regionalization of Higher education and Number of Programs

David (2012) mentioned the relevance of recognizing the social position of institutions and students in order to develop appropriate learning models to contribute to social equity, inclusion, and transformation of society. In the same direction, Knight and Woldegiorgis (2017) argued that regionalization of higher education has become a world
issue; however, each country has different goals and strategies “that are consistent with their own cultural, historical, political and economic contexts and their own higher education priorities” (p. 1). In that context, it is evident that the University of Antioquia has committed to higher education as one of the Colombian government strategies to change the country. For the purpose of this study, regionalization is linked and will be explained by the number of academic programs offered in the regions and the number of students enrolled in those programs in a determined academic period as represented in Figure 1.

The impact of the regionalization model is a critical and timely study for the University of Antioquia, the state, and the country. The findings will mark the next step for the regionalization model of the University of Antioquia, its stakeholders, the state, and the nation.

**Importance of the Study**

The University of Antioquia (2018) has been implementing a regionalization model that can be replicated by other institutions; the University underscores the relevance of this strategic line in stating the following:

The regionalization of the University contributes to the creation, development and adaptation of knowledge for the benefit of human growth with the criteria of equality, universality, responsibility and autonomy. And it is based on the criteria of academic excellence, interdisciplinarity, relevance, coexistence, cooperation, participation and social commitment. (para. 3)

Colombia is experiencing an important moment in the history of the country. Universities and all entities in the education sector have a relevant responsibility to the country’s peace agreement and to the thousands of people who are now back to civilian life and need to be reintegrated into a working society. In the University’s annual report,
Management and Social Results (Universidad de Antioquia, Departamento de Información y Prensa, 2015), the University administration declared the relevance of the presence of the University in the different regions of the country:

The public character of the Universidad and its role as a key factor in the territories makes it demand an active role in this new stage that begins for the country. 2015 took a stance in the Alma Mater and in the direction of regionalization in the debate of the role of higher education in building peace, and with it, the need to understand how the academic community sets an agenda for deliberation from and with the regions and the challenge to continue playing an active role in the post-conflict scenario. (p. 12)

Measuring the impact of the current model is an opportunity for the national and regional administration to improve it and thereby contribute to human capital development, promote equity, increase coverage through academic programs relatable to the regions, and develop the regions that were affected for years by the violence of the civil war. If this study shows a strong relationship between the strategy of the regionalization of higher education of the University of Antioquia and human capital development and equity improvement in one of the more important regions of the state of Antioquia, the model of regionalization of the University of Antioquia should be considered a key strategy to promote regional development across the country, and higher education should be looked at as a necessary and central strategy of the Colombian government to keep growing and developing the country and its regions.

**Assumptions**

This study assumes that the secondary data base provided by the University represents the alumni of the University of Antioquia in the region of Urabá, especially since the campus selected has one of the highest enrollments of all the regions.
The study presupposes that the data collected by the university offices is reliable and can be trusted. I assumed that this data came from and represent the alumni of the campus selected for this research.

Limitations of the Study

One limitation of this study was the use of secondary data. Since I did not participate in the collection process, there is no evidence of what issues were presented during the collection and organization of the data. In addition, the involvement of the Office of Admissions and Alumni in the collection of the data could have duplicated some of the information provided. Due to the limitations of the sample of the region of Urabá, the impact on equity and human capital may be skewed in reference to the entire country.

Delimitations of the Study

A delimitation concerned with the sample selected for the study is that only one of the 12 current campuses was selected. Thus, it might have affected the reliability of the study to be generalized. Initially, three campuses were selected for this study, however the databases needed were only available from one campus of the region of Urabá. Therefore, this study is focused and limited to the region of Urabá and the campus located in the city of Apartadó.

Definition of Terms

Regionalization: A process that allows for generation of environments of access to higher education through the relationship between national institutions, territorial entities, institutions of higher education, and other regional actors, considering the social,
economic, political, cultural, and geographic conditions that promote the development of the regions (MEN, 2013). Regionalization is measured through the number of academic programs open in the region and explained by the influence in equity and human capital development.

**Equity:** Coined by some as “the unequal treatment of unequal entities” (Mesias, 2017), it is concerned with equal opportunities for all. In particular, in education, the Organization for Economic Cooperation and Development (OECD) refers to equity as the equality of education opportunities (OECD, 2018, p. 54). Equity is measured though gender equity and improvement in income of the alumni of the region of Urabá.

**Regional Development:** Understood in terms of equity from the relocation of resources according to the ethical principles of equity in which resources are properly shared between those who are part of the community, it is the continuous search to satisfy the needs of individuals that make up the society (Gharajedaghi & Ackoff, 1986). It is part of the policies of governments to satisfy the needs of the people, educate them, develop human capital, improve their life conditions, reduce the index of poverty, and promote equity through economic growth.

**Human Capital:** “Human capital can be broadly defined as the stock of knowledge, skills and other personal characteristics embodied in people that help them to be more productive” (Botev, Êgert, Smidova, & Turner, 2019, p. 5). The authors also emphasized the fact that investment in human capital implies investment in education at all levels, but not only investment in formal education if not also in continuing education (Botev et al., 2019). The development of human capital is measured through the number
of alumni who stay in the region after graduation, the number of alumni working, and the number of students enrolled in academic programs.

CHAPTER 2

LITERATURE REVIEW

Purpose of the Literature Review

The purpose of this study was to measure the impact of regionalization of higher education on human capital development and equity in the major region of Urabá, Antioquia, Colombia where the University of Antioquia has opened campuses.

As a means of providing a clear understanding of the variables of this study, the literature review focuses on the definitions, historical reviews, and summaries of global and regional research.

The review of literature includes books, journal articles, University of Antioquia articles, government articles, and related websites. The research was done at the University library and by using Internet search tools such as Google Scholar, ProQuest, and JSTOR.

This chapter has an overview of the regionalization of higher education, what it is, and what it implies, as well as Knight’s (2013) model of regionalization, as well as a review of regionalization globally and in Colombia, a review of regional development, the regionalization of the University of Antioquia, and a review of equity and human capital.
An Overview of Regionalization in Higher Education

In the context of the regionalization of higher education in Europe, Fragnière (1976) argued that “regionalization implies essentially a set of political, organizational and administrative patterns, all in varying degrees, involving certain compromises between centralization and local autonomy” (p. 10). Following a similar path regarding the regionalization of higher education in South America, Espinoza (1995) stated that regionalization can be considered “as a holistic process of harmonization of development and specifically, as the horizontal redistribution of the service of education” (p. 5). The regionalization of higher education reveals the possibilities of multiple sectors contributing to diverse actors inside and outside the regions. In particular, Fragnière (1976) argued that the regionalization of higher education is linked with two specific issues: education’s role in regional development and the contribution of higher education to the solution of problems in the economic, social, and cultural areas of the regions.

Regionalization of higher education can have multiple interpretations and definitions according to the context of the university, region, or country. Knight (2012) defined regionalization of higher education as the “process of building closer collaboration and alignment among higher education actors and systems within a defined area or framework called region” (p. 35). The University of Antioquia found a close collaborator in the local authorities in the region of Urabá to achieve the dream of higher education together; in this way, they were able to build the first public university in the region with the goal of satisfying local needs around development and economical growth.
Regionalization is linked with internationalization in many scenarios; for some authors, it is a variant of internationalization, but in a popular form (Kozma & Radacsi, 2000). In a close but different approach, Knight (2013) argued that the evolution and increase of internationalization has led institutions to generate more cooperation and collaboration among the different actors of the regions, thus taking the conversation towards the regionalization process. “History will likely demonstrate that regionalization and internationalization have a symbiotic relationship. They co-exist, can be complementary or competitive, and each will have prominence at different stages of international co-operation” (Knight, 2012, p. 29). Internationalization has opened doors to relationships and partnerships among universities in various continents and countries, and also among universities in the same regions and the same countries. These relationships and partnerships have created needs in policies and practices that the various actors share and complement them through internationalization or regionalization. It depends on the goal.

Knight and Woldegiorgis (2017) identified three assumptions that allow a better understanding of regionalization. One assumption is that regionalization is a process in continuous evolution, a second assumption is that different actors are working towards rebuilding the regions, and finally, “the view that the region is defined by the players involved and can be interpreted as a specific area or an organizational, programmatic, political framework” (p. 13). Knight and Woldegiorgis (2017) argued that a region does not always make reference to a geographic place; however, in the context of Colombia, where this research took place, a region should be understood in geographic terms.
Higher education regionalization is frequently conflated with terms such as integration, partnership, collaboration, harmonization, and sub-regional (Knight, 2013; Knight & Woldegiorgis, 2017). Knight (2013) emphasized the importance of understanding the concept of regionalization and the terminology of, for example, region, regionalism, regionalization, regional integration, and inter-regional integration (p. 113).

In order to see how these terms relate to each other, Knight (2013) defined and analyzed four lines of inquiry: “the impact of regionalism on higher education; higher education regionalization; higher education as an instrument for regional integration and inter-regional cooperation in higher education” (p. 113). The first line of inquiry on the impact of regionalism on higher education “focuses on how the changing notion and increasing importance of region is affecting higher education” (p. 113). The second line, higher education regionalization, “introduces the process of intentionally building connections and relationships among higher education actors, structure and systems within a region” (p. 113). Knight’s (2013) third line of enquiry saw higher education as a tool for regional integration and took “a more tactical approach to how higher education can be used to achieve regional integration” (p. 113). The last line is inter-regional cooperation in higher education, which “introduces yet another direction of inquiry which involves interactions between two regions” (p. 113).

Knight (2013) split the second line, higher education regionalization, into three approaches that conform to the functional, organizational, and political approaches (FOPA). These approaches are not independent. They interact with each other; they work together by accompanying and supporting each other (p. 117). The different approaches to regionalization are represented in Figure 2.
The functional approach described by Knight (2013) “takes a functional perspective of regionalization and focuses on the practical activities of higher education institutions and systems” (p. 118). This approach includes students, faculty, and administrators in programs like institutional agreements and academic mobility. The organizational approach of regionalization “refers to the organizational architecture that evolves to develop and guide the regionalization initiatives in a more systematic (although some might call bureaucratic) manner” (p. 118). Finally, the political approach “involves the political will and strategies that put higher education initiatives on the agenda of decision-making bodies. The political approach helps to launch major programs or funding schemes and to formalize initiatives” (p. 120). The ideal situation, which is not always possible, is to have synchronization among the three approaches, that is, the area represented by the intersection of the three circles (Figure 2). Knight (2013) explained that these approaches complement each other; however, they are not present in
the same proportion every time but having all three assures sustainability for the higher education regionalization process (p. 117).

A Regional Overview of Regionalization

The purpose of this section is to explore the regionalization approaches of higher education globally, to understand better the regionalization process and how it has been emerging around the world. Considering that “each region of the world has to approach higher education regionalization with goals and strategies that are consistent with their own cultural, historical, political and economic contexts and their own higher education priorities” (Knight & Woldegiorgis, 2017, p. 1), this review provides a variety of lenses in this direction to analyze regionalization in Colombia in further sections.

Regionalization in North America

In the United States, the regionalization of higher education is not a new phenomenon. Its history began with the end of World War II and the creation of the Southern Regional Educational Board in 1949. This board is comprised of public universities in 16 southern states. The phenomenon grew quickly as many other states and public universities decided to emulate this effort. Four years later, public universities in eight states formed the Western Interstate Commission for Higher Education, which grew to include 11 states by 1955. The New England Board of Higher Education was created in 1955. This board included universities in six different northeastern states. The Committee of Institutional Cooperation was the umbrella for universities in nine midwestern states and was created in 1958 (Nelson, 2013, p. 239).

“By the end of the 1950’s, 43 of 50 states had joined one of these four major regional university networks” (Nelson, 2013, p. 240). The universities were motivated to
belong to one of these organizations. One of the impacts of the regionalization of higher education was the expanding research agendas between the institutions. Regional collaborations provided an excellent way “to expand and improve programs while also saving money” (p. 240). Collaborative work between universities allowed the universities to work in research even if their budgets were restricted.

Regionalization in Europe

According to Fragnière (1976), the role of universities in regional development was not a new phenomenon. In Europe during the Middle Ages, the relationship of institutions of higher education to regional development was planned and requested by cities in order to have higher education in their territories.

Neave (2003) said that the European regionalization process started in Sweden in 1977 but produced no significant results for the next 10 years (p. 146). Other countries like Spain, Belgium, and France also wished to promote the regionalization of higher education. In Europe, higher education regionalization was led by four major initiatives as described by Chao (2014): “The Erasmus Program in 1987, the Magna Charta Universatum in 1988, the European Credit Transfer System (ECTS) in 1989 and The Convention on the Recognition of Qualifications Concerning Higher Education in the European Region in 1997” (p. 565). The Erasmus program, European Community Action Scheme for the Mobility of University Students (ERASMUS) is one of the most relevant factors in student mobility in Europe and was the first program to generate inter-university collaboration.

The Erasmus program was founded in 1987 and featured mobility for faculty and staff, as well as students. Yepes (2006) listed other programs in Europe, such as Socrates,
Lingua, and Minerva, that strengthened regionalization (p. 114). One ambitious measure, “the Bologna process [sic] began on [sic] 1998/1999. It includes over 41 countries that look forward to a broad European Higher Education Area towards the end of the current decade” (Yepes, 2006, p. 115). Chao (2014) stated that the Sorbonne Declaration and the Bologna declaration, built on the previous programs and regionalization efforts described above, led actors to create the European Area of Higher Education (EHEA) in 2010 (p. 565).

Regionalization in Asia

Yepes (2006) argued that East Asian countries connected to North America and Europe to learn about regionalization and mobility (p. 117); however, it is not simple, but is changing and growing (Knight, 2012). The regionalization of higher education in Asia has moved through networks and mobility agreements in some regions of the continent. Knight (2012) listed organizations like the Association of South East Asia Nations (ASEAN) University Network (AUN), created in 2003 by ASEAN to strength relations between higher education institutions. Another relevant player in Asia is the South East Ministers of Education Organization (SEAMEO), an organization that has created 22 centers in the region to work with education issues. A more recent project listed by Knight (2012) that contributes to the regionalization of higher education in Asia is Campus Asia, created in 2010. This project links Japan, Korea, and China through students’ mobility and regionalization of programs, impacting directly the human capital development of Asia.

According to Chao (2014), it is necessary to consider not only the “political development and economic interdependencies, but an understanding of the regional
higher education interdependencies in the light of a growing global higher education market” in order to understand regionalization of higher education in Asia (p. 570). Chao also stated that in East Asia, “the regionalization of higher education is similarly [more] complex than its political-economic regionalization process” (p. 566). They are currently experiencing rapid growth with multiple associations among Asian countries.

Regionalization in Africa

According to Knight and Woldegiorgis (2017), the history of regionalization of higher education in Africa can be synthetized by three moments:

The first is the intergovernmental conferences among African Ministers of Education since 1960, the second is the transformation of the Organization of African Unity (OAU) to the African Union (AU), and the third involves the consolidation of various fragmented higher education harmonization initiatives within the sub-regional economic communities. (p. 4)

The process of regionalization of higher education in Africa has been influenced by multiple actors that have allowed and strengthened the evolution of the process.

The strategy of regionalization in Africa, according to Knight and Woldegiorgis (2017), concentrated on creating stronger networks among universities with the purpose of integrating the most important higher education actors. Some of the key elements to work on together as universities included the quality assurance and accreditation systems and common degree levels (p. 22).

Regionalization in Latin America

According to research by the Economic Commission for Latin America and the Caribbean (ECLAC), Latin America is the most unequal region of the world. However, the countries have assumed the challenge to reduce inequality:

High levels of inequality still exist, conspiring against development and posing a considerable barrier to the eradication of poverty, the expansion of citizenship, the
exercise of rights and democratic governance. Significantly reducing inequality is a commitment set out in the 2030 Agenda for Sustainable Development, which has been assumed by all the countries of Latin America and the Caribbean. (ECLAC, 2016. p. 13)

Yepes (2006) stated that “countries are retrying to cooperate and develop at the regional level on issues such as education in the hopes of responding to the pressures of economic liberation from the Unites States” (p. 113). Organizations such as UNESCO have supported collaboration among Latin American countries to encourage the regionalization and internationalization of higher education within the region. Pereira Laus and Costa Morosini (2005) stated, “Brazil’s support of strengthening regionalization does not imply a retreat from multilateral accords but rather an attempt to create a new forum for managing the impact of globalization” (p. 120). This is evidence that regionalization of higher education in South America is also linked to the economic and political systems of the region.

Inequity in access to education has been a common denominator in South America. Big capital cities have monopolized public education, leaving rural citizens with no option other than to move to the city. Rama Vitale (2015) argued that the regionalization of higher education in Latin American can be a differentiating factor in improving equality: “Educational regionalization is associated with educational access and output at the local level, and the construction of pertinence as an indicator of the quality of learning for the various social and productive sectors” (p. 307). Rama Vitale (2015) also argued that the regions demanded more qualified human resources and that regionalization had, in fact, delivered it to the various regions. He directly linked
regionalization of higher education with improvement of equity and human capital development.

Rama and Cevallos (2016) made a synopsis of the regionalization of higher education in Latin America. They affirmed that in the last 30 years, public and private universities have been putting together efforts to minimize the difference in access to education between big cities and rural areas, with diverse models of regionalization used by universities across the countries of Latin America.

According to Villalobos Chacón (2017), the multiple models of regionalization implemented in Latin America are a relevant factor to improve and balance access to higher education and reduce inequality:

Latin America in recent years has articulated regional models of university management, which seek to develop more harmoniously different territories of the countries, seeking to reduce inequality, and giving real access to careers and academic programs to the population coming from different geographical areas, which usually being distant from the periphery, are historically disadvantaged in effective access to higher education. (p. 160)

In particular, the Consejo Nacional de Educación Superior (2014) has emphasized that in Colombia, the regionalization of higher education is not just the processes of offering programs in different locations; it goes beyond that: “It should support the generation of installed capacities in the regions so that, within the characteristics of each region, they develop pertinent programs” (p. 105). One of the most relevant elements of regionalization in Colombia has been the opening of programs that really meet the needs of the region regarding field of study and human capital needs.

**Evolution of Regionalization of Higher Education in Colombia**

The regionalization of higher education in Colombia is connected with the decentralization of policy, processes, and resources from the central government to the
regions. Higher education institutions were concentrated in the cities; therefore, the people needed to move out of the regions in order to have access to higher education.

In 1995, the University of Antioquia started the regionalization project in the state of Antioquia. In 2002, the Colombian government recognized the importance of regionalization not only for public, but also for private higher education institutions. However, it was not until 2003 that the Colombian government created the Regional Centers of Higher Education (CERES) at the national level with the purpose of decentralizing the offer of higher education programs in order to have programs pertinent to the region and its needs for human capital, as well as to increase coverage and to contribute to equity and the development of the regions (Ospina Londoño, Canavire-Bacarreza, Bohórquez, and Cuartas, 2015).

The opening of CERES between 2003 and 2010 was massive: 165 CERES were created in 31 states and 589 cities (CESU, 2014). By 2017, Colombia had about 241 CERES serving in the regions (Global Education Monitoring Report Team, 2020). At the present time, public and private universities have been replacing the CERES in the regions, and there are not many left.
In order to achieve government goals of higher education, regionalization became a crucial strategy in Colombia in order to provide access to superior quality higher education, innovation, and technology to the regions.

![Diagram](image)

**Figure 3.** Regionalization as a Process in Colombia (CESU, 2014).

In 2014, the MEN defined the different actors and processes involved in the regionalization of higher education in Colombia (Figure 3). The model clearly states the four elements of the process and the definition and aspects involved in each. The regionalization of higher education in Colombia has involved different actors in the regions, regional administration, local government, education, and business in order to guarantee the permanence of the presence of institutions of higher education in the regions.

**An Overview of Human Capital Development**

According to Espinoza (1995), “in the theoretical discussion, one of the elements that is often pointed out to promote the regional development is the preparation of human
resources according to the characteristics and needs of each particular region or subregion” (p. 1). In order to identify those needs, universities must work together with the leadership of the regions in order to have pertinent programs for the regions. On this matter, Calvo argued that

regardless of the development objectives and styles, scientific and technological knowledge is always required, trained people to create them are necessary, and mechanisms to make them accessible are always essential. The university located in the region has the opportunity to meet the most relevant aspirations and needs in the field of culture, the sciences, and the arts and to make available the knowledge achieved by man. (as cited by Espinoza, 1995, p. 3)

Higher education institutions play an important role in the regional and socio-economic development of the regions, as well as in its educational functions (Espinoza, 1995). Higher education institutions are called on to provide support in research and technology to entrepreneurs and to bid to small organizations in the regions in order to impact their growth and the development of the region. This support is a direct contribution to the wellness of the population. Espinoza (1995) stated that “many of the possibilities of regional development depend on the adequate regionalization of higher education” (p. 3). The mission of colleges and universities is directly linked to the development of their communities and the larger culture of the societies in which they exist.

Kane (2004) argued that investment in public universities directly impacts the citizens and their jobs: “Education is a classic public good—the benefits of education flow not only to the consumer of the educational services but also to the broader community, which gains from having an educated workforce and citizenry” (p. 12), and therefore, a strong region. Botero-Ospina (2004) expanded Kane’s (2004) statement, saying that the development of the regions cannot be considered only a government
responsibility; it should be a collective effort of the regional civil society where all can contribute with development from their different perspectives.

Higher education institutions, both public and private, are preparing the human capital of the regions and have become an essential element of hope for the communities. Arbo and Benneworth (2007) stated:

The contribution of higher education institutions to regional development is a theme that has attracted growing attention in recent years. Knowledge institutions are increasingly expected not only to conduct education and research, but also to play an active role in the economic, social and cultural development of their regions. (p. 7)

Marošević and Pandža (2015) also spoke about how higher education institutions impact the regions: “Separation from the traditional role focused exclusively on education and research creates foundations for a move towards economy and knowledge-based society” (p. 450). The education of young people provides the regions with new ideas, innovation, entrepreneurism, and knowledge. “The growing importance of knowledge as the base of the economy has been translated into growing expectations of universities to function as engines for regional development” (Popescu, 2011). It is a role that both private and public universities must assume.

According to the European Union in the regional policy report (Goddard & Kempton, 2011), there are four areas where higher education institutions can make great contributions to regional development: regional capacity building, regional innovation, social and cultural development, and human capital and skills development (Figure 4). Universities can have a more active role in regional development inasmuch as they are positioned intentionally for the advancement of these areas.
Brunner et al. (2012) emphasized the relevance of human capital for the development of the regions, and therefore, the relevance of tertiary education in the regions: “Human capital and skills development is the single most important factor for economic growth of countries and regions. Nurturing relevant skills to fuel growth is the best guarantee that the region will prosper in future” (p. 101). Valero and Reenen (2019) called higher education a channel to impact regional growth. Higher education is, then, a catalyst to human capital.

**Enrollment in Higher Education**

Another relevant aspect of regional development in order to provide human capital to the regions is the enrollment of students in higher education. According to data from the World Bank (2019), there has been a general growth in total enrollment in
higher education around the world. The total enrollment in relation to total population worldwide in 1995 was 15.56%; in 2017, it was 37.88%. This percentage implies that by 2017, worldwide higher education systems were able to provide possibilities for less than half the eligible population to pursue higher education. World Bank statistics also indicate that the trend continues to grow in South America since the total enrollment percentage has increased for almost all countries since 1995. In Colombia, the country where this study took place, the total enrollment percentage in 1995 was 16.15% versus 60.43% in 2017, representing an increase of 44.28%.

According to Marta Ferreyra, Avitabile, Botero, Haimovich Paz, and Urzua (2017), enrollment growth in Latin America is explained by the increase of accessibility in Chile, Colombia, Ecuador, and Peru. These countries have applied effective access strategies to increase the availability of higher education. Despite efforts to increase the enrollment rate around the world, higher-income classes are still the ones with greater access to higher education (Castro, Yamada, & Arias, 2016; Marginson, 2016; McCowan, 2016; Muhr, 2016; Schendel & McCowan, 2016). Education access inequality is a common denominator among the countries in South America.

In South America, income gaps in higher education are still significant. Even though there have been some positive changes in access to higher education, studies reveal that access to higher education in Latin America is still more prevalent among families of higher economic status. Students from families with higher levels of income are 45% more likely to access higher education than students from low-income families (Marta Ferreyra, et al., 2017).
Particularly in Colombia, the access of students in the two lowest income quintiles increased by 4.8% from 2000 to 2013 (Marta Ferreyra et al., 2017, p. 51). The difference of opportunities to access higher education based on household income is notable. The disparity in access to higher education between the low- and high-income level families has not showed relevant changes between 2001 and 2016, as represented in Figure 5.

**Figure 5.** Access to Higher Education by Household Income: Colombia (SEDLAC and World Bank, 2020).

From 2001 to 2016, Colombia has experienced an increase in the enrollment of students in higher education programs; however, 61% of rich students enrolled in 2016, compared to 25% of the poorest students who enrolled. This difference has become a common denominator for all household income. According to SEDLAC and World Bank (2020), the gap in access in Colombia is similar for all household incomes (see Table 1).

**Table 1.**

*Access to Higher Education in Colombia*
<table>
<thead>
<tr>
<th>Year/Economic Level</th>
<th>Poor</th>
<th>Lower class</th>
<th>Middle class</th>
<th>Upper middle class</th>
<th>Upper class</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>21%</td>
<td>18%</td>
<td>17%</td>
<td>23%</td>
<td>46%</td>
</tr>
<tr>
<td>2002</td>
<td>11%</td>
<td>16%</td>
<td>18%</td>
<td>29%</td>
<td>53%</td>
</tr>
<tr>
<td>2003</td>
<td>17%</td>
<td>14%</td>
<td>17%</td>
<td>31%</td>
<td>52%</td>
</tr>
<tr>
<td>2004</td>
<td>18%</td>
<td>16%</td>
<td>19%</td>
<td>30%</td>
<td>54%</td>
</tr>
<tr>
<td>2005</td>
<td>18%</td>
<td>17%</td>
<td>20%</td>
<td>32%</td>
<td>60%</td>
</tr>
<tr>
<td>2008</td>
<td>24%</td>
<td>23%</td>
<td>26%</td>
<td>35%</td>
<td>60%</td>
</tr>
<tr>
<td>2009</td>
<td>22%</td>
<td>22%</td>
<td>26%</td>
<td>34%</td>
<td>58%</td>
</tr>
<tr>
<td>2010</td>
<td>22%</td>
<td>24%</td>
<td>27%</td>
<td>35%</td>
<td>61%</td>
</tr>
<tr>
<td>2011</td>
<td>24%</td>
<td>24%</td>
<td>27%</td>
<td>34%</td>
<td>58%</td>
</tr>
<tr>
<td>2012</td>
<td>23%</td>
<td>23%</td>
<td>27%</td>
<td>36%</td>
<td>58%</td>
</tr>
<tr>
<td>2013</td>
<td>26%</td>
<td>25%</td>
<td>29%</td>
<td>37%</td>
<td>62%</td>
</tr>
<tr>
<td>2014</td>
<td>25%</td>
<td>26%</td>
<td>30%</td>
<td>39%</td>
<td>61%</td>
</tr>
<tr>
<td>2015</td>
<td>27%</td>
<td>26%</td>
<td>31%</td>
<td>37%</td>
<td>59%</td>
</tr>
<tr>
<td>2016</td>
<td>25%</td>
<td>27%</td>
<td>32%</td>
<td>38%</td>
<td>61%</td>
</tr>
</tbody>
</table>

Source: SEDLAC and World Bank, 2020

The population with the lowest household income has not been impacted as needed by the strategies to increase enrollment at all levels proposed by the Colombian government. Equity in access to higher education based on income levels is still a challenge for the Colombian government and for both state-run and private universities.

Public and private higher education institutions in Colombia have centralized their education in the capital and in a few of the more developed states, leaving semi-rural areas with few options to get professional training. Of the population of Colombia, 77,1% is located in cities, and 22.9% is in rural areas (DANE, 2018. Based on national education statistics (MEN, 2016), 32% of all college students in Colombia in 2015 were concentrated in the State of Cundinamarca, specifically, in the city capital of Bogotá; 13.8%, in the State of Antioquia; 7.5%, in the State of Valle del Cauca; 5.8%, in State of Atlántico; and 5.4%, in the State of Santander. This means that 64.6 % of college
students were concentrated in Bogotá and the five more important states in the country, leaving 35.4% in the remaining 27 states. The national higher education coverage rate in 2017 was 52.8% (MEN, 2018).

In the 125 municipalities of the State of Antioquia, there are still large differences in the coverage of higher education between urban and rural areas. The coverage rate in the city of Medellín, the capital of Antioquia, was 135.6% for 2017, compared to the majority of the municipalities (88%) where the coverage rate was less than 20% in 2017. According to Figure 6, in the region of Urabá, the city of Apartadó had the highest coverage of higher education in the region.

![Figure 6. Coverage of Higher Education in the region of Urabá (Gobernación de Antioquia, Departamento Administrativo de Planeación, 2017).](image)

It is important to note that the main campus of University of Antioquia in the region of Urabá is located in the city of Apartadó. It is evident that the increase of the coverage of higher education by 53.2% in the city of Urabá is a consequence of the regionalization of the University. According to statistics from the Antioquia Government
coverage of higher education in Apartadó has been increasing in the last 15 years, showing the impact of the University in the development of the region.

A Historical Overview of the Regionalization of University of Antioquia

Since 1995, the University of Antioquia has committed to the strategy of increasing the coverage of higher education through the University Development Plan for 1995 to 2006. The plan contemplated five strategic areas: scientific, technological, humanistic, cultural, and artistic development, with five objectives for that sector articulated among themselves, one of those objectives being directly related to the regionalization “to take the University to the regions and increase the educational coverage and extension of the university” (Universidad de Antioquia, Oficina de Planeación, 1996, p. 68).

This study took place in Antioquia, which is the second most developed state in the country, with a population of 6,690 million, and 2,477 million living in the city capital of Medellín (DANE, 2018). The state is divided into 9 regions and 125 municipalities.

The University of Antioquia is located in the state of Antioquia in the capital city of Medellín. According to Sánchez (2014), efforts were made to open the first academic center in the city of Turbo in Urabá in 1995. In 1996, the second academic center was opened in the region of Magdalena Medio, in the city of Puerto Berrio. By 1999, there were five centers opened in Antioquia State in the regions of Urabá, Bajo Cauca, Magdalena Medio, and Oriente; these centers were recognized as sub-campuses by the
Ministry of National Education in December 2000. Figure 7 shows the regions of Antioquia, and in particular, the region of Urabá where this study is focused.

*Figure 7. Regions of Antioquia (Subregiones de Antioquia, 2015).*

The five initial sub-campuses started offering undergraduate and graduate programs, as well as beginning to develop proposals to improve basic and secondary education in the regions; their goal was to impact education from basic levels (Universidad de Antioquia, Oficina de Planeación, 1996, p. 70). The plan to impact the regions continued, and between 2004 and 2005, the three remaining regions, Norte, Nordeste, and Occidente, opened their doors to the University of Antioquia campuses (Sánchez, 2014).
According to the University Development Plan (1996), one of the most relevant strategies of the regionalization project was opening academic programs that met the needs of regions in human capital and natural resources. As an example, students around the country from urban and rural zones who wished to study Marine Biology would go to the Urabá region, in particular to the city of Turbo sub-campus since it was the only place where the program was offered. The city of Turbo is located in the north of the State of Antioquia on the coast of the Caribbean Sea.

Another example of pertinence and relevance of programs in the regions is the case of the region of Oriente sub-campus. This is located 10 minutes from the international airport of Rionegro, the second largest airport in the country and the largest in the state of Antioquia. The University offers the undergraduate program in Aerospace Engineering only on this campus because the airport is nearby and the need for prepared human capital prepared is obvious. Thus, students from all over the country go to this campus to study that program since it is the only one in the country.

The geographical and environmental characteristics of the regions, the natural resources, the industries and businesses located in their cities and regions are strategic factors considered by the University of Antioquia and its department of regionalization to open new, relevant, and pertinent programs in the regions (Universidad de Antioquia, Oficina de Planeación, 1996, p. 34).

**An Overview of Equity**

According to Marchesi and Martin, the equity refers to two aspects related to individuals:
The Justice that must be present in the educational action to respond to the aspirations of all citizens with common criteria and goals, and second, equity takes into account the diversity of possibilities in which students find themselves and guides decisions in the educational field according to them. (as cited in Barrio, 2006, p. 50)

Calvo argued that if local and national governments can have a more balanced distribution of higher education institutions, the population in the regions would have equal opportunities to access education (as cited by Espinoza, 1995, p. 4). Equity in accessing higher education is impacted by the location of the institutions. Regionalization is part of the strategy to be able to reach the maximum number of people in the regions who will become the future workforce, thus providing a stronger human capital for the local economy.

Woodrow (1999) stated that higher education faces four myths regarding the position opposed to promoting equity: the lack of responsibility to promote social inclusion, the concept that equity is synonymous with the lack of lowering the standards of academic excellence, the admission of low-income students as the last resource of higher education institutions’ desperate need to recruit, and their desire to extend participation but not being able to afford to do it (p. 343). These are not myths today, but a reality for the poorest countries around the world; equal opportunities are not yet a common denominator.

In talking about the relation between equal opportunities and equity means, Barrio (2006) said:

When we refer to equal access and assurance that students, regardless of their starting point, can achieve similar results. In that sense, as of the 1970s, schooling becomes the equalizing strategy for starting inequalities, which implies the implementation of compensatory policies of positive discriminatory action in favor of those who need it most. (p. 48)
Education is a common good that allows individuals in all socio-economical levels, of any race, and of any gender to improve their lives and climb up the social ladder. This implies that education contributes to equity by providing access to all. This access to education must be guaranteed to all citizens without any exceptions. Brennan and Naidoo (2008) argued that “the middle classes will always find ways of reproducing their privileges and that, to be really effective, policy interventions to achieve equity would need to be directed towards the advantaged as well as towards the disadvantaged” (p. 292). In order to achieve equity, higher education needs a transformation starting with policy-makers, as well as a change in all actors involved in the academic process and in the interaction with the communities the institutions belong to.

Fajardo Pascagaza (2018) argued that higher education has become a privilege instead of a right for some sectors of the population. Exclusion disadvantages communities by gender, race, or socio-economic aspects and makes their possibilities to move to better life conditions very difficult: “Poverty in Latin America is real and is associated with the levels of schooling of human groups who have not had opportunities and access to formal or informal education and therefore have not been able to finish their studies” (p. 25). The expansion of education through regionalization should alleviate this lack of equity of access for the disadvantaged population. As stated by the Organization for Economic Cooperation and Development (OECD, 2018), a large part of the inequality in students’ outcomes is indeed related to socio-economic status, and is thus an equity issue that calls for better education policies and practices. Policies that improve equity in education are those that level the playing field among students of different socio-economic status, so that all students get a fair chance to succeed in school and in their future life. (p. 54)
Regionalization has increased the coverage of higher education in Colombia. However, there are still many citizens waiting for changes in policies so they can access tertiary education.

**Brief Summary of Literature**

This review of literature provided evidence that established the relationships between higher education regionalization, equity, and human capital development.

Espinoza (2017) emphasized the fact that access to education is one of the first steps for a country to reach equity, and Macerinskiene and Vaiksnoraite (2006) emphasized the influence of higher education on human capital development. In general, the literature shows the links between these variables, allowing the attempt to create a model to represent the interactions evidenced in the literature review. The current model of regionalization of the University of Antioquia is impacting the same essential factors in the region of Urabá. Regionalization can be measured by the number of programs created in the regions. The impact of the regionalization of higher education of the University of Antioquia in the region of Urabá on equity can be measured through gender equity and income improvement of alumni, and the impact on the development of human capital can be measured by the alumni working in the regions, the alumni working, and the number of students enrolled. The relationship among these variables will be shown in the following chapters.
CHAPTER 3

METHODOLOGY

Introduction

The purpose of this study was to examine the extent to which the University of Antioquia’s strategy of regionalization was related to development of human capital and the improvement of equity in the region of Urabá in the state of Antioquia, Colombia. The University of Antioquia is the second largest public university in Colombia and currently has eight sub-campuses in Antioquia state. Its leadership wants to measure the real impact this strategy has had in the state of Antioquia. The independent variable in this study was the strategy of regionalization. The dependent variables established were the human capital development and improvement of equity.

This chapter provides a detailed description of the research design employed, the population and sample, the description of the secondary data collection, the method used in the study, and the analysis methods. The variables are listed and analyzed.

Research Question

The main question of this study is as follows: Is there a relationship between the University of Antioquia’s strategy of regionalization and the development of human capital and the improvement of equity of in the region of Urabá?

The secondary questions also investigated in this research are as listed below:
• Research question 1: What is the relationship between the improvement of equity and the regionalization of the University of Antioquia in the region of Urabá?

• Research question 2: What is the relationship between human capital development and the regionalization of the University of Antioquia in the region of Urabá?

• Research question 3: Do significant differences exist in equity and human capital development based on gender and socio-economical level?

**Research Design**

This study employed a quantitative correlational and exploratory design with a transactional, not experimental cut, to examine the relationship between the variables by using secondary data. In the context of this study, this methodology allowed me to examine the relationship between the regionalization of higher education and, the human capital development and improvement of equity in the region of Urabá in the state of Antioquia, Colombia. This is a non-experimental procedure, and I did not control or manipulate the variables but analyzed and interpreted the secondary data in order to get conclusions.

The nature of this research allowed the use of a vast amount of data the University of Antioquia had been collecting for years and government databases that are accessible to the public. According to Johnston (2014), “secondary data analysis is an analysis of data that was collected by someone else for another primary purpose” (p. 619). There is a great amount of data produced by colleges and schools that are utilized for diverse
purposes and can be analyzed in multiple ways according to the research topic studied. Collecting data is a time-consuming activity for researchers. Using secondary data optimizes time and still provides valid and reliable data. The University of Antioquia data base used as secondary data in this research contains alumni data from 1996 to 2016 and provides a robust amount of data for analysis.

Dunn, Arslanian-Engoren, DeKoekkoek, Jadack, and Scott (2015) emphasized the benefits of using secondary data: “A strength of secondary analysis is that variables, relationships among variables, and subgroups within a sample not previously analyzed can be examined and may result in important new findings that contribute to existing programs of research and advance the science” (p. 1297). The University data used in this research was used for multiple purposes; however, using it in this research can give a new look to the existing data.

Correlational research allowed me to describe the relationship between variables. “In correlational research designs, investigators use the correlational statistical test to describe and measure the degree of association between two or more variables” (Creswell, 2015, p. 339). This correlational research provided information to determine whether there is a relationship between the selected variables.

In addition, the change in the times of the offering of the academic programs will be analyzed, as well as the possible correlations and differences between the variables, based on indicators belonging to the statistics inferential analysis; associations between variables will also be analyzed through Multiple Correspondence Analysis, and these associations will be verified through inferential and descriptive techniques. Finally, the
projections of regionalization in academic programs, the number of students enrolled, and training levels will be analyzed based on the analytical study of a multivariate time series.

**Description of the Population**

The target population of this study was the alumni from the sub-campuses of the University of Antioquia. The University sub-campuses are located throughout the 63,612 km² of the territory of Antioquia. The campuses are strategically located in the regions of Antioquia: Urabá, Bajo Cauca, Magdalena Medio, Nordeste, Occidente, Oriente, Suroeste, and Norte, as represented in Figure 7. According to the University database, the total number of alumni in these eight regions from 2006 to 2016 is about 7,955, in comparison to the 56,446 graduates from the main campus in the city capital of Medellín. This means that 14% of the alumni comes from the regions of Antioquia and this is the population the research analyzed.

**Description of the Sample**

The sample for this study were alumni from the sub-campus of the region of Urabá as requested by the University of Antioquia administration. This is the second largest sub-campus and one with a higher growth in students and performance. This sub-campus is located in the city of Apartadó. The city of Apartadó is located near the Atlantic Ocean in the Gulf of Urabá about 312 km from Medellín, the state capital. The region of Urabá represents 10.35% of the population of the state of Antioquia. It is the second largest region in population after the capital city, and its surroundings represents 58.48% of the population of the state of Antioquia (Cámara de Comercio de Urabá,
The region of Urabá is one of the regions that were most affected by the Colombian war between the government and illegal groups; it has high levels of poverty, but is also one of Colombia’s richest areas in natural resources and diversity of race. According to the University of Antioquia database, this campus had more than 2,091 alumni from 1996 to 2016; 43% of them were men, and 57% were women.

Data Collection

I used secondary data analysis. The data collected were official from the existing databases of the offices of Admissions and Alumni of the University of Antioquia. The University provided the data sets without the personal information of the alumni; it included survey and census data collected by the Offices of Admissions and Alumni.

The data provided by the Admissions Office were collected during the enrollment processes of the students and it is actualized each semester and after graduation through the Alumni Office. The information system is centralized. Therefore, the data collected in the sub-campuses are entered directly into the data base of the University and stored in the information system of the University located on the main campus in the city of Medellín. The database provided included information of all alumni from each sub-campus from 1996 to 2016. These data are collected by the University through the Master Base platform. The alumni receive an average of two emails per week promoting events, courses, and requests for updated data.

Secondary analysis uses the same research principles as primary data collection. One of the disadvantages is that the secondary researchers did not have the opportunity to participate in the collection of the data; therefore, they did not know the problems presented during the collection or with the data (Johnston, 2014).
Definition of the Variables

This study considered one independent variable and two dependent variables. The independent variable was the regionalization of higher education, a strategy created and implemented by the University of Antioquia in 1995. The dependent variables were the development of human capital and improvement of equity. All the variables involved in the analysis to answers the research questions are summarized in Table 2.

Table 2
Summary of Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Definition</th>
<th>Model</th>
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<tbody>
<tr>
<td>Independent Variable</td>
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<tr>
<td>Regionalization</td>
<td>number of programs.</td>
<td>Regionalization = Academics Programs = P</td>
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<tr>
<td>Dependent Variables</td>
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<td>Equity</td>
<td></td>
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<td>Gender of students enrolled</td>
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<tr>
<td>improvement in the salary</td>
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<tr>
<td>Human Capital Development</td>
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<tr>
<td>Formal contribution rates</td>
<td></td>
<td></td>
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<tr>
<td>% of regional employability</td>
<td></td>
<td></td>
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<tr>
<td># of Enrolled Student</td>
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Regionalization: Regionalization was measured based on the number of programs offered per year in the region. These academic programs are considered as a contribution
of the University to the region through the budget invested by the University on research and social impact.

\[
Regionalization = Academics Programs = P
\]

**Number of Enrolled Students:** This is the number of students of all levels and careers enrolled in a given academic period.

\[
Number of Enrolled = E
\]

**Gender Equity:** To measure gender equity, I used the following equation:

\[
Gender Equity = G ; \text{Enrolled Female} = F ; \text{Enrolled Male} = M
\]

\[
G = \frac{F - M}{E} \times 100
\]

The measure was given a score from -100 to 100, with 0 being the central measure of male and female representation; negative values indicated a greater proportion of men compared to women, and a positive measure denoted a greater representation of women than men in the population.

**Salary increase:** This was the measure in percentage of increase in salary of the alumni in terms of their income expectations versus the income expectation of someone without training.

**Employability (Emp):** This was measured by taking into account those enrolled in each area and their formal contribution rates.
*Formal contribution rates (Em):* This was the rate of contributions to the Social Security by academic programs in Colombia that determines or measures the level of formal employability.

*Regional employability (Re):* This was the percentage of those who continued working in the region, based on the regional employment rate for each area of knowledge.

**Procedures**

The University of Antioquia supported this research and had a strong interest in knowing the results. Therefore, the institution provided an alumni database to use as secondary data in this research. The initial request to access University data was made to the President of the University, who closely observed the progress of this research. Permission was granted from the President’s office to the Director of Regionalization of the University to give me the data from the Admission Office. Data access was given without personal information of the alumni, as well as with my commitment to use it exclusively for research purposes.

These data were collected from the University Admissions Office since the first cohort of students graduated from the sub-campus of Urabá. This database is updated periodically through phone calls, emails, and data collected in regular meetings with alumni of the various programs in order to keep the data current. The database provided demographic characteristics of the alumni: gender, race, location, current location, socio-economic level, graduation date, degree received, employment situation, type of organization where they were currently working, type of job they were performing, and whether it was related to the academic program they graduated from. In addition, it
revealed whether the alumni were working in the region or had moved to the city or elsewhere. Data from the government data bases are accessible to the public and are continually updated.

Data Analysis

The data provided by the University of Antioquia and the data from the public database of the Colombian government were analyzed in two phases:

Phase 1: Collection of Data. The data collected from public databases and provided by the University of Antioquia were classified, organized, and cleaned to eliminate inconsistencies and ensure data fidelity.

Phase 2: Data Analysis. The first part was a descriptive exploratory analysis of the data. Next, I analyzed the data to identify the specific behavior of the variables using a VAR model, and finally, I analyzed the correlation of variables using structural equations modeling.

Summary

This research investigated the extent to which regionalization of higher education is related to equity and human capital development. The variables were measured through demographic information using a VAR model of time series and structural equations. Multiple analyses were done to identify the relationship between the variables.


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