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Demographic Factors as Significant Indicators for Short and Long-term Investments in Industrialized, Emerging, and Frontier Countries

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Demographic Factors as Significant Indicators for Short and Long-term Investments in

Industrialized, Emerging, and Frontier Countries

by

Rodrigo de León González

A Dissertation Submitted in Partial Fulfillment of the Requirements for the Degree

Of

Executive Doctorate in Business

In the Robinson College of Business

Of

Georgia State University

GEORGIA STATE UNIVERSITY

ROBINSON COLLEGE OF BUSINESS

2017

ACKNOWLEDGEMENTS

To Rafa Gómez, Dean of IPADE Business School, because you encouraged me to start this endeavor, you supported and trusted me when I went through difficult times, you have always stood by me and my family. There are no exact words to express my appreciation nor are there meaningful actions to demonstrate my gratefulness. I can just thank God for giving me the opportunity to be part of IPADE right when you are at the front, leading our business school, and for sharing precious time by your side.

To Felipe González, because your lessons and discussions have motivated me to foresee this beautiful present. To Julian Sánchez and Roberto Manriquez because you played a very important role as Academic Directors by backing these efforts up. To all people that helped me, in one way or another, reach this goal.

To Danny Bellenger, because you were a great Advisor and Chair. Without your guidance, closeness and friendship, I could not have finished this doctoral program. To Karen Loch and Felix Rioja for helping me achive this milestone.

AGRADECIMIENTOS

A mis padres Armando y Patricia, porque con ustedes comenzó este camino; porque sus palabras, ejemplo, sacrificios y fe permitieron que hoy alcanzara este sueño, que es tan mío como de ustedes. Le agradezco a Dios que les haya dado vida y energía para compartir conmigo esta alegría. ¡Gracias queridos padres!

A mi esposa Pili y a mis hijos Dany y Juanpi, porque ustedes vivieron este Doctorado conmigo. Por todos los sábados y domingos en la distancia, pero nunca de ausencia. Porque no existe motivación académica o profesional más grande que ustedes. Porque a Dios le agradezco cada día de mi vida, pero no existe nada que le agradezca más que la oportunidad de abrazarlos, extrañarlos y siempre regresar a su lado. ¡Gracias Dios!

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ABSTRACT

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April 2017

Chair: Danny N. Bellenger

Major Academic Unit: Robinson College of Business

Investment decision making has always been one of the most important fields to explore in business. Even when approaches to decision making vary by time and region, and sometimes are more intuitive than rational, new technologies and a better access to worldwide information encourage business people to make decisions based on systematically obtained information. In the era of information, when we usually have a data surplus more than a lack of it, building new theoretical frameworks that cluster the main factors that investors should consider before making an investment overseas is highly valuable for companies.

This analysis contributes with a new investment decision-making approach that includes traditional economic and political factors, but enhances the analysis with demographic elements that should be considered. Through a statistical analysis built on reliable public information, this research elaborates on the most important demographic factors to consider when investing in industrialized, emerging, and frontier countries.

Whereas many times investment decisions respond to short-term initiatives and the performance of a specific industry is imperative, other times investors are looking for

a long-term business that requires more variables to be considered in a broader analysis; in both cases demographics could become essential.

This study explores the following main research question: Do demographics enhance our ability to explain and predict foreign investment attractiveness? The full results and analysis will be delivered throughout the text, but as can be seen in advance, "Trade" is an outstanding variable with a steady positive contribution to explain foreign investment, and it is permanently present in the developed and frontiers clusters. Regarding the demographic variables, "Age dependency" was a constant and one of the most important negative factors to explain foreign investment in Developed and Advanced Emerging countries. In general terms, we can state that negative demographic factors are usually those that can help to better explain foreign investment, whereas positive demographic indicators represent a lower contribution. Meanwhile, economics constantly presented a positive contribution.

Index words: demographics, investment determinants, cultural and social factors, aging population, life expectancy, urban population.

I   CHAPTER I: INTRODUCTION

Throughout history we have seen different factors contributing to international development and investment decisions: geopolitics, open economy, democracy, financial markets, etc. All of them have played an important role in designing our current environment. As the world changes, the factors driving investment also change. There are some macro trends that are re-emerging from former times and some others that are totally new; there is no precedent about the possible outcomes that could be expected from these new factors.

Three hundred years ago, the Western empires set out on their path to conquer half the world and culturally influence almost all of it. Before the industrial revolution, and as a result of this breaking point, the United Kingdom became the most powerful nation, ruling more than 34 million square kilometers around the world (Grant, 2011), and its geopolitical supremacy strengthened Western dominance. Then, in the 20th century, the US consolidated this Western hegemony through the economy.

In the 21st century, this dominance is coming to an end, and the world order is likely to change once again. Economic factors have replaced geopolitical influence; we have seen open markets as an essential dynamic that appears to be changing again, and other factors arise to adopt important roles.

Today, some countries in Europe are trying to maintain, and maybe strengthen, the European Union in order to compete as a unified block. There are others struggling with several political and economic ways of thinking within the European Union and a multiplicity of beliefs and religions, which sometimes give rise to violent incidents and

social decomposition. All these events alter the factors that need to be considered in foreign investment decisions.

Simultaneously, Asian giants are rising due to a non-traditional and powerful factor: demographics. China has become the second world economy and is close to surpassing the US, while India, which used to be a British colony 70 years ago, could reach 10 times the UK´s economy 70 years from now (PWC).

Asian influence supported by the largest population around the world has had an economic, political, and cultural impact in every region. For instance, since 2005, China has provided more than $141 billion in loan commitments to Latin American and Caribbean countries and state-owned firms. Chinese loans to Latin America from 2005 to 2016 were larger than those of the World Bank and the Inter-American Development Bank (The Dialogue). During the era of US dominance, all sources of power used to come from there; today there are multiple sources of power, influence, and culture.

In 2030, there will be around 1.5 billion people living in Western regions, while more than 1.6 billion will be living in Africa, and more than 4.5 billion in Asia (UN, Department of Economic & Social Affairs). Demographics may become the exchange rate of economic and political power. Factors such as labor force, migration, and aging may change the world.

Our reality may not change dramatically because the Western philosophy has permeated the Asian countries in general, merging a multiplicity of Oriental ways of thinking with the American and European mindset, but in addition to traditional economic and political aspects, demographics may become the new factor to consider in order to understand international development and investment decision making.

Historically, multinational corporations (MNCs) have often chosen to examine global macroeconomic analyses when making foreign investment decisions. In the future, these investment decisions by MNCs may require more than an analysis of economic trends. Transnational companies must also closely assess national trends in order to identify investment opportunities and risks. As we will see, at a national level, the most commonly studied factors are institutional and economic in nature: a country's governance, infrastructure, macroeconomic environment, and market size, among others; this effort will suggest that such an analysis can be enhanced with the demographic dimension.

Investors usually consider the performance of a very specific industry or sector within a country, as well as traditional economic indicators, as key variables when making investment decisions. The most popular indexes, notably The World Economic Forum's Global Competitiveness Report, do not assign much weight to demographics. However, newer indexes like the Robinson Country Intelligence Index, include information about demographics, which may be very helpful to improve business decision making.

This work seeks to answer the following research questions: Do demographics enhance our ability to explain and predict foreign investment? If so, which are the most important demographic factors to consider when investing in industrialized, emerging, and frontier countries? And finally, are demographic factors a determinant of both short and long-term investments?

II CHAPTER II: LITERATURE REVIEW

Since international investment decisions often use information from traditional economic or financial factors within competitiveness indexes and online datasets, a review of the most frequently used indicators and sources is a helpful starting point. Other complementary indicators, such as cultural variables, which are becoming increasingly important, are also addressed. Furthermore, I pose the role of demographics as a factor in investment decision making in current literature; this information includes relevant findings about the impact that demographics can have on countries, which indicates that demographics are appropriate factors in this type of analysis. On the other hand, the lack of inclusion or relevance of demographics as part of academic research opens a big window of opportunity to achieve a better understanding of the correlation between foreign investment and demographics.

II.1 Traditional Factors in Investment Decisions

When I say: "traditional factors in investment decisions," I don't mean there is a pool of accurate factors that investors always weigh in order to make business decisions abroad. I intend to express that there are some factors that are readily accessible and well known in the business world, and that, because these characteristics are very well-positioned, business people usually analyze them. The first section of this chapter is about those traditional factors, indexes, and databases that are very familiar to business decision makers.

II.1.1 *Indexes*

As I already mentioned, in addition to the performance of a specific industry, economic or financial indicators are usually the information that business people seek before making an appropriate investment decision.

When deciding where to invest, investors can consult a number of tools designed to evaluate countries' relative strengths and weaknesses. Among them, three relevant indexes are the World Economic Forum's (WEF) Global Competitiveness Report, the Heritage Foundation's Index of Economic Freedom (IEF), and the Robinson Country Intelligence Index (RCII). These indexes focus on distinct indicators when assessing the competitiveness of national economies, yet they sometimes draw similar conclusions. For instance, Singapore and Switzerland are among the top five countries in the most recent versions of all three indexes.

However, the divergences between these indexes are telling. For instance, Norway is ranked number 1 by the RCII, but falls outside the top ten in the WEF and IEF indexes. Similarly, the United States is ranked number 3 by the WEF, but it does not make the top ten in the RCII or the IEF. Finally, both New Zealand and Australia are ranked in the top 5 by the IEF, but neither of them land in the top 5 of the other two indexes. These discrepancies highlight the differing priorities of each index.

The Global Competitiveness Report is based on twelve pillars, which are divided into three categories. The first category is composed of "basic requirements," and it includes the following pillars: institutions, infrastructure, macroeconomic environment, and health and primary education. The second category is composed of "efficiency enhancers," including higher education and training, goods market efficiency, labor market efficiency, financial market development, technological readiness, and market

size. The third category is called "innovation and sophistication factors," and its pillars are business sophistication and innovation (Shwab 6). In short, this index thoroughly evaluates traditional political and economic factors that influence investment. It provides valuable insights to potential investors, highlighting the practical challenges that may hamper investment.

The Index of Economic Freedom seeks to determine how "free" a country is by examining four broad policy areas and ten specific categories. The four major policy areas are limited government, regulatory efficiency, rule of law, and open markets. The ten narrower categories are property rights, freedom from corruption, fiscal freedom, government spending, business freedom, labor freedom, monetary freedom, trade freedom, investment freedom, and financial freedom (Miller & Kim). This index is characterized by the conservative ideology of the Heritage Foundation. Once again, we find an index that evaluates traditional investment factors, though its results often differ from those of the WEF.

The Robinson Country Intelligence Index, developed at Georgia State University's Robinson College of Business, takes a different approach that allows investors to delve even deeper into a country's society and culture in order to find synergies and potential conflicts. According to "Country-risk measurement and analysis: A new conceptualization and managerial tool," the RCII considers "history, size, geography, culture, language, ethnic diversity, and other contextual dynamics" (Brown, Cavusgil, and Lord, 2015, p. 1). Countries are categorized across four dimensions: Governance, Economics, Operations, and Society (GEOS). Altogether, the RCII takes

into account 273 variables across 70 sub-dimensions. The tool is also interactive, allowing investors to focus on certain salient variables according to their needs.

The index's "Society" dimension is most relevant to the study at hand. This category considers health, education, demographic dynamics, gender gap, middle class propensity, and environmental stability. It takes into account 109 variables from 13 sources. These data enable investors to better understand cultural factors that may influence operations in a new market. Specifically, the "demographic dynamic[s]" section shows whether a country will benefit from a future demographic bonus or, in the opposite case, suffer from an aging population and shrinking number of workers.

We could find other indexes that are more focused on social matters, but they are not pondered as the main references for investment decision making. For instance, The Organization for Economic Co-operation and Development (OECD) has also developed an interest in less conventional country indicators. The OECD has created an index called the Better Life Index, which focuses less on ranking countries and more on analyzing the factors that contribute to public well-being. The main indicators it measures are housing, income, jobs, community, education, environment, civic engagement, health, life satisfaction, safety, and work-life balance. As expected, wealthier OECD countries tend to score higher, while Mexico and Turkey lag behind. Although the index does not evaluate a particularly wide range of countries, it assesses the strengths and weaknesses of various social systems and attempts to determine how governments can best enhance the well-being of their citizens. Like the RCII, this index is interactive, and users can adjust the scales to measure the aspects of well-being that are most important to them. The Better Life Index would be useful for businesses that want to deepen their

understanding of society in an OECD member country, but it is not a leading index for investment decisions. Table 1 (below) compares each of the indexes described so far.

Table 1. Index comparison

Organization	Index	Key Indicators	Top 10 Countries
World Economic Forum	The Global Competitiveness Report 2015-2016	1. Institutions 2. Infrastructure 3. Macroeconomic environment 4. Health and primary education 5. Higher education and training 6. Goods market efficiency 7. Labor market efficiency 8. Financial market development 9. Technological readiness 10. Market size 11. Business sophistication 12. Innovation	1. Switzerland 2. Singapore 3. United States 4. Germany 5. Netherlands 6. Japan 7. Hong Kong 8. Finland 9. Sweden 10. United Kingdom
World Affairs Council of Atlanta, Georgia State University, Robinson College of Business	Robinson Country Intelligence Index 2015	1. Governance 2. Economics 3. Operations 4. Society Takes into account 273 variables across 70 sub-dimensions in total, including history, size, geography, culture, language, ethnic diversity, and other contextual dynamics.	1. Norway 2. Singapore 3. Sweden 4. Switzerland 5. Germany 6. Netherlands 7. Luxembourg 8. Denmark 9. Ireland 10. New Zealand
Heritage Foundation	2016 Index of Economic Freedom	1. Limited government 2. Regulatory efficiency 3. Rule of law 4. Open markets Sub-areas: property rights, freedom from corruption, fiscal freedom, government spending, business freedom, labor freedom, monetary freedom, trade freedom, investment freedom, and financial freedom	1. Hong Kong 2. Singapore 3. New Zealand 4. Switzerland 5. Australia 6. Canada 7. Chile 8. Ireland 9. Estonia 10. United Kingdom
Organisation for Economic Co-operation and Development	Better Life Index 2015	1. Housing 2. Income 3. Jobs 4. Community 5. Education 6. Environment 7. Civic Engagement 8. Health 9. Life Satisfaction 10. Safety 11. Work-Life Balance	1. Australia 2. Sweden 3. Norway 4. Switzerland 5. Denmark 6. Canada 7. United States 8. New Zealand 9. Iceland 10. Finland

			(Ranking when all indicators are held equal.)

In summary, as mentioned above, the information these well-known indexes provide is a great place to start, but because of the discrepancies among them, any good investment decision should go further and take a look at the other research at hand.

II.1.2 *Online Databases*

For investors that want to go deeper, there are several public datasets to look up. The OECD also maintains a detailed database, which contains information on agriculture, development, national economies, education, energy, environment, finance, government, health, innovation and technology, jobs, and society. Among these statistics, the OECD collects a wealth of data on foreign direct investment (FDI). Three key indicators for potential investors are FDI flows, FDI stocks, and FDI restrictiveness. The data on FDI flows show both inward and outward investment flows for 42 countries (including OECD member states and the G20) from 2005 to 2015. Data on FDI stocks measure "the value of the resident investors' equity in and net loans to enterprises resident in the reporting economy" ("FDI stocks"). Measurements of FDI restrictiveness assess four main types of country-level restrictions: "foreign equity restrictions, discriminatory screening or approval mechanisms, restrictions on key foreign personnel and operational restrictions" ("FDI restrictiveness"). Based on these indicators, China is the most restrictive country for FDI, followed by Myanmar, Saudi Arabia, and Indonesia. The most open countries are Luxembourg in first place, then Portugal, Slovenia, and Romania (in 2014).

Another important collection of online databases is maintained by the World Bank. Known as DataBank, the database collects time series data on foreign direct investment, GDP and GDP growth, PPP, inflation, trade, migration, and many other

topics. It includes information from key World Bank publications, including the 2016 World Development Indicators. Investors can use this site to parse detailed information about countries' developmental progress, economic environments, and other macroeconomic topics.

In addition to these databases, investors could find more very well-structured information from the United Nations, the International Monetary Fund or regional renowned international organizations that could help to strengthen their research; however, this would probably be merely part of the big picture they seek and need.

II.1.3 *Final Remarks on Traditional Factors in Investment Decisions*

In short, there is a wealth of data available online to study macroeconomic trends as well as countries' business and institutional environments. These reports, indexes, and databases enable multinational corporations (MNCs, also sometimes referred to as TNCs or transnational corporations) to compare various potential target countries, identifying economic trends and even assessing government policies toward investment. These tools are inarguably critical to the investment research process. Nevertheless, indexes such as the RCII and the Better Life Index show that additional cultural and demographic factors may be just as important for doing business.

Since the indexes do not show unified results and, depending on the source, one or another country could represent the best investment decision, investors should evaluate a bigger picture and take advantage of existing literature on cultural issues, including cultural distance, local customs, and institutional voids, all of which influence a country's business environment and the investor's role therein. This literature review offers basic

investment guidelines based on these less widely examined factors too, in order to enable investors to make more holistic investment decisions.

II.2   Cultural Elements that Affect Investments

This study will put forward a new demographic consideration that one must understand before initiating business operations in a country, but knowing that demographic and cultural considerations are very related, the correct understanding of these two could make an investment significantly more or less attractive. That is why, in this section, I will begin addressing some specific cultural factors that have been tackled by different authors before the analysis of demographics. The concepts: "cultural distance," "local customs," and "institutional voids" will be explained in the paragraphs below.

II.2.1   *Cultural Distance*

First, Pankaj Ghemawat's paper, "Distance Still Matters: The Hard Reality of Global Expansion," offers a broader conception of "distance" between two markets. This definition of distance includes four dimensions: cultural, administrative, geographic, and economic. In brief, all of these dimensions make countries more or less likely to trade. These dimensions also interact to make trade between two countries either more or less efficient.

- Cultural distance is based on the similarities between two countries' cultures.
- Administrative distance, also known as political distance, refers to the "historical and political associations" that may be shared by two countries (Ghemawat, 2001, p. 4).

- Geographic distance refers to our typical understanding of distance, and it also includes "the physical size of the country, average within-country distances to borders, access to waterways and the ocean, and topography" (Ibid., p. 7).

- Economic distance refers primarily to the income levels of consumers in various countries: wealthy countries are both more likely to trade internationally and more likely to trade with other wealthy countries.

Indeed, trade volumes are proven to be influenced by various "distance attributes." Distance attributes include factors such as common borders, a common language, a common currency, a common regional trading bloc, and a historical colony-colonizer relationship. For example, two countries that participate in a common regional trade agreement have been shown to trade 330% more (on average) than two countries that do not share this relationship (Ibid., p. 4). Consider the case of the U.S. and Mexico. In 1990, before the passage of NAFTA, total trade between the two countries was worth $58 billion. By 2015, U.S.-Mexico trade was worth $531 billion (U.S. Census Bureau). That is an 815% increase! This exceptionally high increase in trade can be further explained by other distance attributes acting on these two neighboring countries.

Most importantly, this paper explains the influence of cultural distance on MNCs. Cultural factors that create or reduce distance include language, religion, race, and social structure. For instance, countries that share a common language are known to trade 200% more (Ibid., p. 4). In terms of consumer preferences, "cultural attributes can create distance by influencing the choices that consumers make between substitute products because of their preferences for specific features" (Ibid., 4). These preferences may be idiosyncratic in different countries, or even certain regions of different countries. For

instance, people living on the coasts of the United States may be more likely to purchase products marketed as natural and organic. One example mentioned in the paper is that Japanese nationals tend to prefer household appliances and automobiles that are small in size.

The article also includes a case study in which Tricon Restaurants International, owner of Pizza Hut, Taco Bell, and KFC, needs to invest in a limited number of markets. A traditional analysis suggests that Mexico is a relatively small market in terms of per capita income and individual consumer wealth, ranked 16th in importance. However, after assessing distance attributes, Mexico ties for second place in terms of market opportunity. Other businesses should take into consideration their own characteristics, and if those characteristics increase or decrease the distance to another market. For instance, a U.S.-based company where a number of managers speak Spanish would be at an advantage when investing in Mexico.

For the purposes of this analysis, cultural distance should be measured in order to determine if additional challenges might arise in a new market. Furthermore, countries that are less culturally distant—as well as less administratively, geographically, and economically distant—should be identified as the best targets of international investment for an MNC.

In "Organizational and Psychosocial Cultural Factors for Successful Investment by Foreign Companies in Mexico," authors Rubén C. González-Salinas, Mónica Blanco-Jimenez, and Patricio Galindo-Mora argue that the two most important cultural differences between U.S. and Mexican businesses involve leadership style and family values. They first explain that, "[w]hen an employee must work in a different location

than his native environment or in his own environment but interact with individuals from other countries (i.e., non-natives), he usually faces a disorientation process and uncertainty" (Oberg, 1960, in González-Salinas, Blanco-Jimenez, and Galindo-Mora, 2014, p. 443). This phenomenon, more commonly known as culture shock, can result in productivity losses. As there are at least 1,900 MNCs in Mexico with 500 or more employees, these concerns are of critical importance in the Mexican workplace (Carrillo & Gomis, 2009, in Ibid., p. 443). Indeed, "[o]f every 100 firms established or created in the country, 50 are from the United States, 33 from other foreign countries, and 17 are Mexican joint ventures" (Ibid., p. 443).

In multinational workplaces, the authors posit that foreign managers must develop cultural intelligence in order to better relate to their local employees. Cultural intelligence is "a series of intercultural competencies, which often include skills of empathy, the ability to distinguish between the [surface culture] and the underlying culture, and the ability to act as a mediator between two cultures" (Ibid., p. 448). Managers may need to adapt their leadership style, adopting "transcultural leadership" practices. U.S. managers should be particularly aware of Mexico's culture of family values, which the authors (who are themselves Mexican) posit are a major motivator and source of identity for Mexican nationals.

This paper is particularly useful because it explains some practical effects of cultural distance in the workplace. MNCs should be prepared to adapt to the needs of their employees in international offices through the development cultural intelligence.

II.2.2 *Local Customs*

Secondly, local customs in business are highlighted in the paper "Getting to Know the Neighbors: *Grupos* in Mexico," written by John Sargent in 2001. This paper first explains that business groups, called *grupos*, are a major form of business in Mexico. *Grupos* are defined by scholars in various ways: Khanna and Rivkin (2001) say that "a business group is a set of firms which, though legally independent, are bound together by a constellation of formal and informal ties and are accustomed to taking coordinated action" (Sargent, p. 16-17). Strachan (1979) suggests that business groups have three main features: "(1) diversity, typically having businesses in many different sectors; (2) pluralistic composition, meaning that groups are generally composed of more than just one family; and (3) a fiduciary atmosphere, in which the loyalty and trust normally associated with family or kinship groups are common" (Sargent, p. 17). Scholarly evidence suggests that groups, which can act as financial intermediaries or other institutions in developing countries, may become less advantageous organizational forms as governments become more efficient and markets become more globalized.

Sargent posits that MNCs will likely need to work with Mexican *grupos* in some context, and advises them to develop an understanding of the type of *grupo* involved. He argues that there are two main types of *grupos* in Mexico. While both are family-owned, family-managed at the highest levels, and include diversified firms, these two groups also demonstrate important differences. The Monterrey model, which is based on the business philosophy of Eugenio Garza Sada and several other important Monterrey families, tends to value advanced education (particularly from prestigious universities) and technology. These groups maintain a "clear separation between business and family," often work with

MNCs, demonstrate high levels of efficiency and top product quality, are more likely to export abroad, and overall operate under a "modified meritocracy" system (Ibid, p. 20). On the other hand, the Gómez model "frequently wasted valuable resources and made decisions against economic sense in order to gain ascendancy or to satisfy cravings for family sentiment and a feeling of belonging," according to Lomnitz and Perez-Lizaur (Ibid., p. 19). These business groups concentrate all power within the family, may employ managers (family members) who did not attend college, and generally maintain their competitive advantage through personal social connections.

Sargent's article explains that, in the Mexican context, taking a minority interest in a venture with a *grupo* will not allow sufficient control for the MNC. Instead, "establishing a wholly owned subsidiary or creating an alliance with a majority interest may be preferred alternatives" (Ibid., p. 23). He emphasizes that potential investors should evaluate the *grupo* to determine if it has more Monterrey or Gómez characteristics. Sargent's paper is particularly useful for this analysis because it demonstrates how Mexico's unique business environment could cause problems for MNCs if they are not adequately prepared to deal with local customs in businesses.

II.2.3 *Institutional Voids*

Thirdly, the role of institutional voids is demonstrated in two key texts: "Strategies That Fit Emerging Markets" (Khanna, Palepu, and Sinha, 2005) and "Multinationals in Emerging Markets" – Chapter 4 of "Winning in Emerging Markets: A Road Map for Strategy and Execution" (Khanna and Palepu, 2010). The authors' main thesis is that investors must assess a country's institutional context to better understand its political and social systems, labor markets, capital markets, product markets, and

openness to foreign investment. Then, investors can make one of three choices: (1) adapt their business model, (2) alter the institutional context, or (3) not invest.

Khanna, Palepu, and Sinha define institutional voids as "the absence of specialized intermediaries, regulatory systems, and contract-enforcing mechanisms in emerging markets." They observe that American corporations tend to perform better in their home environments than abroad, particularly struggling to understand and compete in emerging markets. The institutional voids that often exist in emerging markets require MNCs to adopt new strategies—they cannot simply use the same methods and expect to be supported by the same "soft infrastructure" when moving into a new emerging market (Khana, Palepu, Sinha). The authors conclude that, even though MNCs cannot adopt a 'one size fits all' approach to international investments, they can use the strengths of different markets to create an international system. For example, GE Healthcare manufactures parts for its diagnostic machines in China, Hungary, and Mexico; it develops the necessary software in India. The market for diagnostic machines is small in each of these countries, yet GE Healthcare takes advantage of the relatively low production costs available in these emerging markets in order to cheaply produce high-quality equipment.

"Winning in Emerging Markets: A Road Map for Strategy and Execution" was written by Khanna and Palepu, and they continue to develop the former ideas in their book by laying out a framework for responding to institutional voids. For instance, MNCs may face the choice of either *replicating* their business model or *adapting* their model to a new institutional context. In another situation, companies will either *compete alone* or *collaborate* by partnering with local actors or setting up joint ventures. In

addition, MNCs can either *accept* the market or *attempt to change* it, depending on their ability and/or willingness to fill institutional voids themselves. Finally, businesses may choose to *enter* a new market, *wait* until a more opportune moment, or *exit* in the face of unacceptable difficulties. (The italicized words above indicate key terms used by the authors.)

Khanna and Palepu highlight the pitfalls of institutional voids in the chapter titled "Multinationals in Emerging Markets." For instance, they explain that MNCs must take into account the additional costs required for adjusting their business models to make sure such efforts will pay off. If MNCs attempt to localize too much, they may end up losing their competitive advantage as international actors operating on a large scale. In addition, joint ventures can provide stability and local knowledge, but required technology transfer agreements can end up producing strong local competitors. The solutions to institutional voids must be decided on a case-by-case basis through careful analysis.

Institutional voids are important for this framework because they often pose unforeseen challenges to MNCs in emerging markets. Investors must consider the third-party firms that they will need in order to conduct business, as well as the regulatory environment that must be in place in order for them to succeed. Furthermore, major players should consider the ways that they themselves can alter the business environment in an emerging market to their advantage—taking into account the well-being of the public too.

Another element of the institutional environment that may be relevant for MNCs is the stringency of environmental policies in FDI-recipient countries. In a 2011 OECD

study titled "Environmental Policy Stringency and Foreign Direct Investment," Margarita Kalamova and Nick Johnstone analyze concerns that countries with less stringent environmental policies would attract more FDI and become "pollution havens." The authors argued that, "in policy terms, the existence of such an effect – or even the perception of the existence of such an effect – may have a 'chilling effect' undermining the incentives for national policymakers to adopt more stringent environmental policies" (Ibid.). This argument counters that of Khanna and Palepu, as it suggests that certain institutional voids may be positive for businesses under some conditions.

The results of the OECD analysis showed that there is a small but statistically significant positive effect on incoming FDI flows when a country has relatively lax environmental laws. However, "this effect tends to exhibit an inverse U-shape," meaning that lax regulation discourages investment below a certain level (Ibid.). The authors believe that excessively lax regulation signals that the receiving country may have a more uncertain investment environment, which makes a country less attractive for investment. On the other hand, strict environmental regulations drive up costs and push foreign investors away.

A country's regulatory structure is particularly important for MNCs to consider because it can indicate the stability of the overall investment environment. Similarly, the role that institutional voids can play should be analyzed from various angles to determine all of their effects on an MNC.

Institutional voids are also significant in that they may prevent national development goals from being reached. In "Corporate Strategies for FDI in the Context of Latin America's New Economic Model," author Michael Mortimore (2000) posits that

MNCs are often able to achieve their objectives, while governments are not able to reach their national development goals. He argues that Latin American policymakers in the 1990s sought to attract FDI in order to boost growth and development, though they did not always succeed: "As shall become apparent, however, the burst of FDI in the 1990s has not generally achieved key host government goals related to converting FDI into a significant new engine growth and development" (Ibid., p. 1612).

Considering the receiving government's perspective on FDI is important because it leads to agreements that are beneficial both for emerging countries and MNCs. Khanna and Palepu argue for filling institutional voids for the good of society, rather than taking advantage of them. In the 21st century, companies must also consider how they can be good citizens and support the countries in which they are operating.

II.2.4 *Final Remarks on Cultural Elements that Affect Investments*

In conclusion, investors might want to look beyond the typical risk assessments when making investment decisions. Potential pitfalls related to cultural factors can be avoided with careful study and analysis. In particular, cultural distance, local customs, and institutional voids should be taken into consideration by MNCs interested in investing abroad. See Table 2 for a summary of this section's findings.

Table 2. Cultural factors

Topic	Paper	Author(s)	Key Findings
Cultural distance	Distance Still Matters: The Hard Reality of Global	Pankaj Ghemawat (2001)	Less cultural distance between two countries—as well as administrative, geographic, and economic distance—makes trade more likely and more efficient.
	Organizational and Psychosocial Cultural Factors for Successful Investment by Foreign Companies in Mexico	Rubén C. González-Salinas, Mónica Blanco-Jimenez, and Patricio Galindo-Mora (2014)	In MNCs, managers need to develop cultural intelligence in order to work productively with foreign employees. In Mexico, family values are particularly relevant.
Local customs	Getting to Know the Neighbors: *Grupos* in Mexico	John Sargent (2001)	In Mexican business groups, there are two main models: the professional Monterrey model and the unprofessional Gómez model.
Institutional voids	Strategies That Fit Emerging	Tarun Khanna, Krishna G. Palepu, and Jayant Sinha Markets (2005)	In the face of institutional voids, MNCs can adapt their business model, alter the business environment, or not invest.
	Multinationals in Emerging Markets – Chapter 4 of Winning in Emerging Markets: A Road Map for Strategy and Execution	Tarun Khanna and Krishna G. Palepu (2010)	MNCs face a number of choices when entering a new market, and they can pursue an array of strategies depending on the circumstance.
	Environmental Policy Stringency and Foreign Direct Investment	Margarita Kalamova and Nick Johnstone for the OECD (2011)	Lax environmental policies draw in FDI up to a certain extent, and then regulatory uncertainty pushes investors away.
	Corporate Strategies for FDI in the Context of Latin America's New Economic Model	Michael Mortimore (2000)	FDI is not inherently positive for receiving countries, as in the case of Latin America in the 1990s.

Putting economic and cultural factors together sets a wider perspective for investors; nevertheless, demographics are still missing. As I said at the beginning of this study, there was a time when macroeconomic factors were enough; then again, we have seen very important research about cultural factors. The premise of this work is that the inclusion of demographics may have become an essential part of investment decisions.

II.3   Demographics as a Factor in Investment Decision Making

A review of the literature demonstrates that country-level demographic indicators are not often used in investment decisions. However, factors such as population growth, a rising middle class, an aging population, migration, and changing birth rates can have a significant impact on a country's business environment in the medium to long term. Identifying clusters that will soon benefit from a demographic bonus, or on the other hand, that will soon be affected by an aging population and an overtaxed healthcare system, may prove to be important for businesses. This section will examine theories and factors that determine investments and how demographics can play a role in this game.

As it was expected, there are just a handful of academic articles regarding demographics and its influence in economic performance and foreign investment attractiveness. The evidence does not present systematic studies that address the role between demographics and foreign investment that could represent a valuable contribution for the business and academic fields. The few written works that tackle the topic are usually about a particular country.

Since there are no studies that address the assertion that demographics enhance our ability to explain and predict foreign investment attractiveness in industrialized, emerging, and frontier countries in the long and in the short run; I estimate that this analysis will contribute to the addressed relationships with enough statistical evidence.

While the interaction between demographics and foreign investment is a new research field, there are many theories about FDI and its determinants, so, as a background context on the subject, I will address three main topics throughout this section: (1) The Eclectic Paradigm and theories about FDI and its determinants, which can be a good starting point to foresee a possible relationship between FDI and

demographics (2) The complexity of understanding FDI determinants as a result of different and particular environments and motivations and, finally, (3) Particular cases where demographics could explain and predict FDI attractiveness that encourage this study to do a systematic analysis among a larger sample of countries.

II.3.1 *The Eclectic Paradigm and Theories about FDI and its Determinants*

As I mentioned before, there is not just one theory about FDI and its determinants, and there are many factors that could play a role in this context. Just to give an example of a number of theories that study FDI and its determinants, I will display a summary of theories compiled by Assuncao, Forte & Texeira, which present some determinants that can explain FDI flows, involving the micro and macro dimensions (Assuncao, Forte & Texeira, 2011, p. 3).

Table 3. Theories about determinants for FDI flows

Theory/ Theoretical Approach	Determinants	Author
Heckscher-Olin Model/ MacDougall-Kemp Model	Higher return on investments, lower labor costs, exchange risks	Hecksher and Ohlin (1933), Hobson (1914), Jasay (1960), Mac Dougall (1960), Kemp (1964), Aliber (1970)
Market imperfections	Ownership benefits (product differentiation), economics of scale, government incentives	Hymmer (1976), Kindleberger (1969)
Product differentiation	Imperfect competition	Caves (1971)
Oligopoly markets	Following rivals, responding to competition in domestic markets	Knickerbocker (1973)
Product life cycle	Production function characteristics	Vernon (1966)
Behavior theory	Fear of loss of competitive edge, following rivals and increased competition at home	Aharoni (1966)
Internalization	Market failures/inefficiencies know-how (leads to horizontal internalization), market failures (lead to vertical internalization)	Hennart (1982, 1991), Teece (1981, 1985), Casson (1987)
Eclectic Paradigm (OLI-Ownership, location, internalization)	Benefit of knowing productive processes, patents, technology, management skills /Advantages of locating in protected markets, favorable tax systems, low production and transport costs, lower risk / Advantage of internalization cutting transaction costs, lowering risks of copying technology, quality control	Dunning (1977, 1979)
New theory of trade	Market size Transport costs Barriers to entry Factor endowments	Dixit and Grossman (1982), Sanyal and Jones (1982), Krugman (1983), Helpman (1984, 1985), Markusen (1984), Ethier (1986), Horstmann and Markusen (1987, 1992), Jones and Kierzkowski (1990, 2001, 2005), Brainard (1993, 1997) Eaton and Tamura (1994), Ekholm (1998), Markusen and Venables (1998,2000), Zhang and Markusen (1999), Deardoff (2001)
Institutional approach	Political variables: Financial economic incentives Tariffs and tax rate	Root and Ahmen (1987), Bond and Samuelson (1986), Black and Hoyt (1989), Grubert and Mutti(1991), Rolfe et al. (1993), Loree and Guisinger (1995), Haaparanta (1996), Devereux and Griffith (1998), Haufler and Wooton (1999, 2011), Mudambi (1999), Barros and Cabral (2001) Benassy-Quere et al (2001), Hubert and Pain (2002)

As we can see, there are several theories from different moments in history and by different authors, but most of them are associated with the location dimension of the OLI paradigm (infrastructure, human capital, economic stability, and production costs), with the institutional approach (corruption, political instability and institutional quality, and financial and fiscal incentives), and with the 'New Theory of Trade' (market size, market growth, openness of the economy, and factor endowments (Assuncao, Forte & Texeira, 2011, p. 16).

From all of these theories, there are no consensual results about the determinants of investment, and a large number of studies do not find any statistically significant relation for some determinants, while some others have been neglected (Assuncao, Forte & Texeira, 2011, p. 17). However, it looks like the Eclectic Paradigm theory appears as the most accepted theory to explain FDI and its determinants. In addition to that, the third area of the paradigm: "location", involves external variables that contribute to explain FDI; to mention some, we can list political stability, government policies, investment incentives and disincentives, infrastructure, institutional framework (commercial, legal, bureaucratic), cheap and skilled labor, market size and growth, macroeconomic conditions and natural resources (adapted from Dunning, 1993, p. 81). Demographics cannot be found within the components of this theory, but some variables like labor or market size, which are closely related to it, are considered.

In the words of Dunning (2001), the paradigm asserts that, at any given moment in time, an investment will be determined by the configuration of three sets of forces:

- The (net) competitive advantages which firms of one nationality possess over those of another nationality in supplying any particular market or set of markets.

- The extent to which firms perceive it to be in their best interests to internalize the markets for the generation and/or the use of these assets; and by so doing, add value to them.

- The extent to which firms choose to locate these value-adding activities outside their national boundaries (location).

The Eclectic Paradigm further avers that the significance of each of these advantages and the configuration among them is likely to be context specific, and in particular, is likely to vary across industries (or types of value-added activities), regions or countries (the geographical dimension), and firms (Dunning, 2001, p.176).

Additionally, this theory splits FDI and foreign portfolio investment (FPI), which helps to gain a better understanding of investment and its determinants. Accordingly, FDI and FPI are the variables that the present study will use as a reference point.

Dunning argues that, while the major explanatory differences between the two kinds of capital exports rested on the kind of ownership advantages possessed by the two groups of investors and the extent to which such advantages were coordinated with those of the potential host countries, via internal FIAT (in the case of FDI) or the external market (in the case of FPI), there were others, notably those that had to do with locational choice, that were very similar. Moreover, there is increasing evidence (set out in Dunning and Dilyard, 1999) that the two kinds of foreign investment are complementary rather than substitutable, with FDI tending to lead (private) FPI, at least in the early stages of a country's IDP (Dunning, 2001, p. 185).

Altogether, neither the Eclectic Paradigm nor any other theory reflects the direct relationship between investment and demographics, but it does demonstrate the link

between external international factors related to demographics and FDI-FPI. This theory won't be tested in this study, but some elements of it will be used and linked.

II.3.2 *The Complexity of Understanding FDI Determinants*

One of the reasons why there is room to analyze factors like demographics is that there are not only several theories about FDI and its determinants, but many variables that can become determinants.

FDI responds to several factors in different contexts, and that is why investment decision making should conduct an *ad casum* analysis. In the end, the goal of any investor should be to strike the right balance between the particular variables from a particular context and those common variables that present consistency on how to attract FDI over time. We will see examples of how context triggers diverse FDI motivations and how there are consistencies too.

A paper that highlights the unique characteristics of different business environments is "Factors influencing foreign direct investment and international joint ventures: A comparative study of Northern Ireland and Bahrain," by Audrey Gilmore, Aodheen O'Donnell, David Carson, and Darryl Cummins (2003). In this study, the authors interviewed senior executives from 42 FDIs in Bahrain and 40 FDIs in Ireland. After listing the 22 most relevant motivations for FDI, they asked the executives to rank their motivations for engaging in foreign investment. Next, the researchers asked the executives to rank which factors had been best satisfied through the investment. Table 4 below summarizes the findings of the study.

Table 4. Motivations and satisfaction levels

	Most important initial motivations for FDI	Factors with which firms were most satisfied after start-up
Northern Ireland	1. Investment is a better way to service markets than exporting or licensing 2. Availability of skilled labor 3. Financial incentives 4. To use NI as an export base 5. More profitable operations (than exporting, licensing, etc.)	1. More profitable operations (than exporting, licensing, etc.) 2. Investment is a better way to service markets than exporting or licensing 3. Response to host government 4. Financial incentives 5. To use NI as an export base
Bahrain	1. Tax structure 2. Infrastructure provision 3. Low taxation 4. Political stability 5. More profitable operations than exporting or licensing	1. Tax structure 2. Low taxation 3. Infrastructure provision 4. Cultural closeness to home 5. Political stability

The most striking finding of this study is that companies investing in Northern Ireland and Bahrain demonstrate very little overlap in their key motivations and satisfactions. Companies that invested in Northern Ireland were most likely to be motivated by the belief that they could better service markets through FDI than through exporting or licensing. In Bahrain, on the other hand, foreign companies were most attracted to the tax structure, as Bahrain does not have corporate or income taxes. This result highlights the distinct business environments that exist in Northern Ireland and Bahrain. For policy makers, the authors argued that "investment bodies will be alerted to the fact that key motivations and expectations of investors may vary considerably and

will be contingent on the investors themselves and on the potential host market" (Gilmore et al., 2003, p. 212).

The authors also observed that senior executives were most satisfied with four out of the five factors they considered their key motivators. They conclude, "the fact that investors' pre-set-up expectations have largely been met should be welcomed by investment bodies in the two regions" (Ibid., p. 212). Clearly, the agencies that support investment in these two countries have distinct strategies and goals for raising international investment.

In their conclusions, the authors were most surprised that neither country's investors focused on low-cost labor. On the contrary, skilled labor was considerably more important than cheap labor in these two markets. Furthermore, in neither country were foreign investors particularly interested in the size and growth potential of the host market. Since these are considered key factors for FDI, this outcome is rather surprising.

One last interesting conclusion was that "cultural closeness to home was regarded as a stronger motivation and a factor with which firms were more satisfied post-set-up in the Bahrain study as compared to the Northern Ireland study" (Ibid., p. 211). For investors in Bahrain, cultural closeness was ranked the 6th most important motivator and the 4th most satisfied indicator, while in Ireland it was ranked 13th and 11th, respectively. The authors conclude that "the importance of cultural closeness varies according to the country of origin of the investing company and furthermore suggests that the degree to which experience affects the importance of cultural affinity, also depends on the origin of the investor" (Ibid., p. 211).

Therefore, this study indubitably highlights the significance of both the sending and receiving country's cultures in determining the importance of cultural closeness, but also demonstrates that investors are likely motivated by different factors in different markets, which is one of the assumptions that I previously pointed.

It is clear that sometimes investors look for low-cost or skilled labor, a broad market size, or maybe a very specific target, tax incentives, stability, infrastructure, etc. And the combination between their investment goal and the local environment will establish a very particular mix of motivations. But in spite of these peculiarities, different studies have found some constant elements that lead FDI in general terms as well.

For instance, in 1999, Duran used the Panel data and time series techniques to find the FDI drivers for the 1970-1995 period. The study indicates that the size, growth, domestic savings, country's solvency, trade openness, and macroeconomic stability variables were the catalysts of FDI. Beven and Estrin (2000) establish the determinants of FDI inflows to transition economies (Central and Eastern Europe) by taking determinant factors such as country risk, labor cost, host market size, and gravity factors from 1994 to1998 (Narayanamurthy, Perumal, and Kode, 2010, p.4).

Another paper that shows FDI inflows is "Examining the Determinants of Foreign Direct Investment," by Graeme O'Meara (2015). In this study, the author examines the principal determinants of FDI on a cross-country sample of developed and developing countries, demonstrating that "by controlling for factors such as corporate tax rates, skills of the labor force, populations, ease of doing business, and market size, it has been shown that these variables accounted for about 40% of FDI inflows across 99 countries in 2015" (Ibid., p. 14).

There were some other significant variables, like GDP per capita, household final consumption, and the size of the labor force, but one of the most interesting findings was that "surprisingly, in this sample, education (human capital) and corporation taxes played no significant role in explaining FDI" (Ibid., p. 14). The author concluded that traditional factors like market size and growth are the most prevalent considerations for foreign investors; I think this statement is completely related to the population size, which we will address further on.

Finally, O'Meara says that FDI is a better indicator to measure long-run growth and economic development than other forms of capital inflows because it brings technology and management skills that can be adapted, learned, and absorbed, especially for growing economies. In this study, I will show the correlation between FDI and demographic factors, linking the existing literature and my current contribution to the topic.

In the same order of ideas, in "Determinants of Foreign Direct Investment," by Bruce A. Blonigen and Jeremy Piger (2014), there is evidence gathered through a Bayesian perspective analysis, which the authors conducted from different sources, that governmental policies do not encourage FDI; the authors argue that "there is little robust evidence in our analysis that policy variables controlled by the host country (such as multilateral trade costs, business costs, infrastructure or political institutions) have an effect on FDI" (Ibid., p. 810). Nevertheless, they also pose that across the papers they analyzed "there is little consistency in the covariates that are postulated to explain worldwide FDI patterns" (Ibid., p. 778). This statement is consistent with the idea that FDI can be explained by different factors regarding different contexts, business goals,

etc., opening up the possibility of including new elements such as demographics in the analysis.

Based on this definition, key information for investors who plan to invest abroad will be considered. The assumption is that investments in the country of residence respond to different factors and include access to first-hand information, while investments in other countries use international sources like indexes or datasets. The final investment decision will probably follow direct interests and variables, such as the potential partners, competitors, and target market, but macroeconomic, political, and cultural factors strengthen a wider analysis. In this context, the inclusion of demographic factors to the analysis can be very valuable.

II.3.3   *Demographics and Investment*

This section will address three main issues: the effects of demographics on labor markets around the world, the specific ties between demographic change and economic growth, and the possible relationship between demographics and foreign investment.

II.3.3.1 *Demographics and Labor*

In a *Harvard Business Review* article titled "Managing Demographic Risk," authors Rainer Strack, Jens Baier, and Anders Fahlander (2008) examine how global labor markets will shift in the coming years. They observe that more than 30% of the U.S. energy sector workforce is more than 50 years old, and the percentage is expected to rise to 55% by 2020. Similarly, in Japan's financial services sector, a 61% increase in the number of workers over the age of 50 is expected by 2020. The authors emphasize, "Indeed, even in an emerging economy like China's, the number of manufacturing workers aged 50 or over will more than double in the next 15 years" (Ibid.). Beyond

aging population, many economies face a mismatch between available and needed skills. For instance, Germany has a shortage of engineers and an excess of unskilled labor, so that "the unemployment rate of unskilled labor is more than six times higher than that of university graduates" (Ibid.).

On a micro level, these issues in the labor force pose risks for business managers. Retiring employees may take critical knowledge and skills with them, and aging workforces may lead to decreased productivity. A mismatch in skill sets may make these employees difficult to replace. As a result, companies should begin planning years in advance to identify future workforce vulnerabilities.

The authors outline strategies to diagnose the type of risk that a business will face and to mitigate that risk. The two main issues will be *capacity risk* and *productivity risk*. According to the authors, capacity risk is "a potentially diminished ability to carry out the company's business of making a product or offering a service" (Ibid.). A productivity risk, on the other hand, may result when older workers are less able to perform physically demanding job functions, feel unmotivated because they do not have career opportunities, or lack the technological knowledge to keep up with changing practices. Both of these risks can be addressed if identified early on.

In this shifting landscape, companies will need to pay more attention to their recruitment, retention, and talent management strategies. In order to close the talent gap, businesses should pursue two main strategies: reducing their future demand for scarce labor, and increasing their future supply of qualified workers. Accordingly, businesses should seek opportunities to increase their productivity and outsource work wherever possible, and they should transfer and train employees to take over at-risk roles.

In short, these challenges can affect MNCs in both developed and developing markets, whether from aging workforces or mismatches in skills. Potential investors should take into account their need for workers before committing to invest in a certain country.

This line of thinking is echoed in "Can India Reap Its Demographic Dividend?" by Navi Radjou (2009). Though India has very healthy demographic patterns in the coming years, it must ensure that its workers are fit to do the jobs needed by MNCs. Radjou argues that "India's expected demographic dividend could rapidly turn out to be a demographic nightmare unless the country promptly addresses the many structural and systemic problems in its education and training system." In 2009, only 12% of Indians attended college, and only 12% of its 509 million workers were considered skilled laborers.

Top policymakers differ on how India should achieve its educational goals. Some leaders want to cultivate world-class universities to compete with Harvard and Cambridge, while others emphasize a bottom-up approach that will increase the skills of the average Indian. The latter system is likely more practical in the short and medium term. Radjou highlights two key points that he believes India must consider: first, education must focus more on practical skills than on theoretical knowledge, and second, India's education system must embrace a greater diversity of programs to reduce dropout rates and nurture students' diverse interests and abilities.

In short, simply having a demographic bonus does not mean that countries will succeed. The right policies must be in place in order for countries to develop talent.

Potential investors should look at the education policies and workforces of the countries that interest them to make sure their businesses' needs will be met.

Furthermore, the time window of investment decisions should be taken into account in countries with a demographic bonus. As mentioned above, India will boast strong demographics in the coming years, but in the long term (40 years from now) much of its working population will be retiring, and significant additional constraints will be placed on its healthcare and pension systems. These shifts may impose long-term risks on MNCs.

In "India's Demographics: Favorable Today, Costly Tomorrow," author Semil Shah (2009) highlights the efforts that the Indian government is putting in place to modernize its health system before this demographic shift occurs. Pharmaceutical companies in India and other emerging markets are focusing on the lower tiers of the pyramid in order to develop cheaper products and boost sales volumes. India has also become a leader in clinical trials and healthcare industry entrepreneurship. Finally, conditional cash transfers have enabled some patients and healthcare providers to receive payments in exchange for making healthy choices. However, Shah acknowledges that even more progress will be needed, as India's growing middle class will continue to have higher standards for healthcare.

India is a particularly interesting example because it is a major emerging market in the global economy. How India is able to manage its shifting demographics will be significant for companies around the world.

II.3.3.2 *Demographic Change and Economic Growth*

In recent years, a number of scholars have explored the relationship between demographic change and economic growth in China. Two such articles are included here. China is a particularly interesting case because it has demonstrated astronomical economic growth over the past thirty years, but it will also face an aging population in the coming years, exacerbated by the "one-child" family planning policy.

In "Demographic change and economic growth: Theory and evidence from China," authors Shenglong Liu and Angang Hu (2013) state: "With fertility declining and population life expectancy increasing, China is facing an increasingly serious problem of population aging" (Ibid., p. 71). However, their statistical analysis shows that both declining birth rates and an increasing working-age population have led to economic growth. Liu and Hu argue that "due to the decrease of birth rate and the increase of the share of the working-age population, China's average annual per capita GDP growth rate increased 1.19 and 0.73 percentage points during the sample period" (Ibid., p. 71). They claim that these demographic shifts have added 19.7% to China's economic growth from 1983 to 2008.

Therefore, their argument presents a paradox. China will soon face an aging population, yet the policies that put China in this predicament have also created incredible economic growth. However, soon the percentage of the population in the working-age group will decrease, leading to a drag on economic growth. The authors suggest that policy makers should invest more in human capital, since education has positively affected growth. Effectively, productivity gains may be able to offset the loss of laborers.

Liu and Hu's findings also suggest that the increase in population density during the sample period reduced economic growth through environmental challenges and crowding. They believe that the aging population will lead to a peak in China's population density, and that the subsequent gradual decline in population density "will directly slow down the population pressure on resources and the environment. This [will perhaps] partly offset the negative impact brought about by the population aging" (Ibid., p. 71).

Not all academics are in agreement with this perspective. Xing Li, Zeguang Li, and Man-Wah Luke Chan make a contrary argument in "Demographic Change, Savings, Investment, and Economic Growth" (2012). They argue that the increasing number of older people in society will increase China's savings rate, which will have a positive effect on growth. They justify this argument by explaining that Western and Chinese market dynamics may be quite distinct. For instance, "empirical studies of developed economies [have demonstrated] that a higher proportion of the working-age population will contribute to an increase in the savings rate" (Ibid., p. 9). However, they believe outcomes will be different in China: they argue that the aging population "should bring up the savings rate. This is particularly true in that social security systems are inadequate and savings are a means of risk prevention... The high savings rate of the older generation should result in higher investment, becoming an important driving factor of economic growth" (Ibid., p. 9).

Their empirical results had some overlap with Liu and Hu's, as Li, Li, and Chan determined that the population growth rate has a negative effect on the savings rate (leading to decreased economic growth.) However, Li et al. found that the working-age

population rate had an insignificant effect on the savings rate, and the old-age

dependency ratio had a positive effect on the savings rate. They conclude that "old-age

dependency has a positive and significant effect on both savings and investment rates"

(Ibid., p. 12). They explain the market dynamics in the following way.

> *The empirical studies imply that the baby boom in the 1980s produced a significant labor supply for the next several decades. These effects can be further broken down. Oversupply of labor makes average wages lower, leading to a decline in the labor force and pushing labor-intensive industries into rapid development. This is in alignment with the trends of China's export-oriented economy and the government's public infrastructure investment. The demographic dividend, described as the higher percentage of working-age population with declining fertility, increases savings because the burden of raising children is reduced. The imperfect social security system currently in place induces the older generation to save in order to fund their living expenditures after retirement. This pushes the overall savings rate to an even higher level (Ibid., p. 12-13).*

In short, the dynamics affecting China's demographic shifts are not yet entirely

agreed upon. Regardless of the effect on the economy, China will certainly experience a

larger elderly population than in the past and a lower percentage of workers. As Liu and

Hu suggest, the challenges of a shrinking working population can be at least partially

offset by continuing to advance education and researching efficiency-enhancing

techniques.

One key paper that explores the main research on the relationship between aging

and economic growth is "The impact of an ageing population on economic growth: an

exploratory review of the main mechanisms" by N. Renuga Nagarajan, Aurora A. C.

Teixeira, and Sandra T. Silva (2016). This paper demonstrates that different studies in

reputable journals have obtained distinct results on the relationship between aging and the

economy. The authors explore three main avenues by which aging populations are

reported to affect economic growth: consumption and saving patterns, public social expenditure, and human capital.

      The authors first describe the factors that lead to an aging population. According to studies by Dalgaard and Yong & Saito, "It is important to note that a decrease in the fertility rate alone will not turn a country into an [aging] country. Along with a lower fertility rate, a decrease in the mortality rate and an increase in life expectancy have also played an important role" (Nagarajan, Teixeira, Silva, 2016, p. 6). These factors all come together in many Western countries. They are likely to affect developing countries in the future. According to Börsh et al., "[aging] population patterns are similar in most countries; the only observable difference concerns the timing" (Ibid., p. 30). The authors summarize all the ways an aging population affects economic growth in the figure below.

Figure 1. Aging population mechanisms

Main mechanisms through which an ageing population has an impact on economic growth
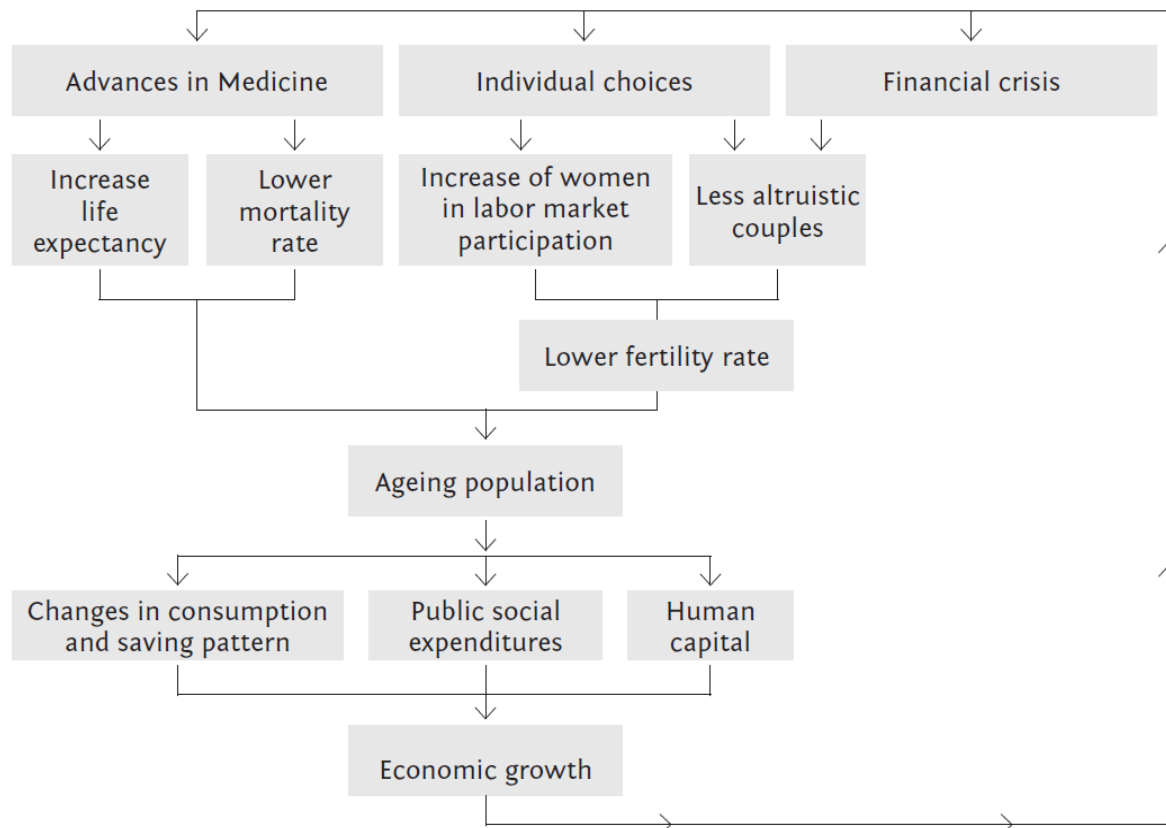
Source: Author's design

The authors then outline the main findings in the areas of consumption and saving patterns, public social spending, and human capital. First, economists tend to agree that retirees have different consumption and saving patterns than those of working individuals. Studies generally to point to negative outcomes, where the increased elderly population reduces families' disposable income and overall consumption. However, these negative effects may be offset by individuals remaining in the workforce longer. Various country-level studies have also shown that the behavior of retired individuals varies by country.

Secondly, the authors specify that the effects on public spending depend on a country's particular policies. A study by Díaz-Giménez and Díaz-Saavedra suggests that when more educated workers retire, they will receive relatively higher pensions and significantly expand government spending. Bettendorf et al. found that, in the Netherlands, population aging will lessen government tax revenues. In the United States, Lugauer found that an older population is linked with greater GDP volatility. These issues may be offset by policies that allow immigration and increase the retirement age.

Thirdly, regarding human capital, studies tend to disagree on whether aging workers will significantly affect productivity or not. Elgin and Tumen argue that economies will adopt new production methods that favor older workers and rely more on machines, so that economic productivity and growth will not be affected by population aging. Garau's et al.'s study of Italy indicates that an increasing number of older employees will have a negative effect on GDP and working conditions. A number of other studies offer conflicting findings, and the authors conclude that "it is obvious that the productivity level of old-aged employees varies among sectors and countries" (Ibid., 25).

Nagarajan, Teixera, and Silva conclude that surveys on public spending, human capital, and consumption and saving tend to draw different conclusions about the effects of an aging population on growth. They observe that the vast majority of studies focused on public social expenditure are negative on aging populations, while a plurality of studies focused on human capital does not find a statistically significant relationship between the two indicators. The most positive studies tend to be focused on retirees'

consumption and saving patterns. Altogether, their study suggests that economists are not in agreement regarding the effects of aging populations on national economies.

In "What Demographics Tell Us About the Economy," author Tammy Erickson (2009) has bad news for companies in the U.S., Europe, and East Asia. She wrote: "Here's the sobering reality we all need to consider as we shape personal, business, and policy decisions this year: demographics support a view of a slower-growing rate of consumption… for at least the next decade or so in the United States, Europe, and even parts of Eastern Asia" (Erickson). Her hypothesis is that consumers in their forties and early fifties tend to spend the most money, and this age group is shrinking in many parts of the world. She refers to the research of Harry S. Dent, who "tracks the number of people from age 46 to 50 in countries around the world, as a proxy for growth in consumer spending in each economy" (Ibid.) Though Dent's age range is highly specific, it reflects the same hypothesis proposed by Erickson, who writes, "[A]n indisputable fact is that the big bulge of high-spending Boomers is moving out of peak spending years, replaced by members of the much smaller Generation X," who also tend to spend more conservatively than the Boomer generation (Ibid.)

She concludes that trying to boost consumer spending in the U.S. and Europe is not a sustainable strategy for growth: she argues that "a successful economic rebound will require developing goods and services that can be sold to economies that do have significant upside in consumer spending" (Ibid.). These considerations are significant for MNCs, which may need to find new markets for their products in coming years

II.3.3.3 Demographics and FDI

In a China-focused study titled, "Foreign Direct Investment and its Determinants: A regional panel causality analysis," authors Man-Wah Luke Chan, Keqiang Hou, Xing Li, and Dean C. Mountain (2014) attempt to parse the determinants of FDI. At the end of the paper, their final piece of advice for Chinese policymakers is the following: "Chinese federal and provincial governments should encourage direct foreign investment to the industries like education and social welfare in order to utilize the foreign experience to improve the characteristics of labor and raise future productivity" (Luke Chan et al., 2014, p. 587). The authors observe that China originally attracted FDI through its lower wages and education levels, but progress in both indicators means that China will have to encourage FDI through productivity and technology. In their statistical analysis, the authors observe that "there is a long-run negative effect of EDU, illustrating the substitution between [education and FDI] in stimulating longer run activity. Thus, in the longer run, areas with lower levels of EDU have had better absorptive capacities to sustain increases in FDI" (Ibid., p. 586). Therefore, even though increasing education may be negative for FDI in the long term, the authors believe it is still the better policy for China.

This article demonstrates the effect of increasing education levels in China on FDI inflows. Though many factors influence levels of FDI, education levels, and the accompanying shifts in wages are important for potential investors to consider.

Another article that considers the role of demographic factors in FDI is "The Interdependence of Immigration Restrictions and Expropriation Risk" by Lena Calahorrano and Philipp an de Meulen (2015). This study creates an integrated theoretical model that finds "a positive relationship between emigration and foreign

investors' perceived security of property rights in developing countries and a negative

relationship between the US [FDI] outflows to developing countries and the share of US

green cards granted to natives from the respective countries" (Calahorrano & an de

Meulen, 2015, p. 2047). The dynamic at work is that emigration makes investors feel

more secure from expropriation: emigration pushes wages upward in the developing

country, making expropriation less attractive by reducing returns to expropriated capital.

However, the developed country (in this case the US) accepts fewer immigrants as its

FDI in a developing country rises, because it has less need for labor. Put another way, the

authors explain that "improving property rights does help developing countries in

preventing a brain drain" (Ibid., p. 2072).

The authors also observe a relationship between the quality of developing-country

institutions and levels of emigration. Calahorrano and de Meulen find that poor

institutions are likely to encourage emigration, and "emigration may also have a

repercussion on institutional quality: Emigration facilitates the spillover of foreign norms

and values, and emigrants from countries with bad institutional quality may become

politically active in order to change institutions in their home countries" (Ibid., p. 2062).

Governments may not want to allow too much corruption and/or emigration, as the

ramifications from disaffected citizens may end up removing incumbents from power.

This paper describes the dynamics between a developed country sending FDI and

a developing country receiving FDI. Although the statistical model has been simplified, it

attempts to show why emigration bolsters property rights, and why increasing levels of

FDI lead to fewer green cards for citizens of the recipient country. These bilateral

dynamics should be kept in mind by MNCs and potential investors.

II.3.3.4 Final Remarks on Demographics as a Factor in Investment Decision Making

This section has shown that demographics and foreign investment are not often evaluated together, leaving space for this study to contribute with new insight into the relationship between foreign investment and demographic shifts. However, the authors included here have laid the principal groundwork for the study at hand. Table 5 summarizes a number of studies on this topic.

Table 5. Demographic considerations

Topic	Paper	Author(s)	Key Findings
Demographics and Labor	Managing Demographic Risk	Rainer Strack, Jens Baier, and Anders Fahlander (2008)	Company leaders need to be aware of the demographic risks they will face in the coming years.
	Can India Reap Its Demographic Dividend?	Navi Radjou (2009)	India needs to adjust its education strategy in order to take advantage of its demographic bonus.
	India's Demographics: Favorable Today, Costly Tomorrow	Semil Shah (2009)	India is taking steps to improve its healthcare systems, knowing that it will have to provide for many more elderly people in the future.
Demographic Change and Economic Growth	Demographic Change and Economic Growth: Theory and Evidence from China	Shenglong Liu and Angang Hu (2013)	China will soon face an aging population; decreases in the birth rate and increases in the working population have led to economic growth over the past 30 years.
	Demographic Change, Savings, Investment, and Economic Growth	Xing Li, Zeguang Li, and Man-Wah Luke Chan (2012)	In China, the aging population is associated with an increased savings rate, which leads to economic growth.
	What Demographics Tell Us About the Economy	Tammy Erickson (2009)	Consumer spending will begin to grow more slowly in the United States, Europe, and Japan due to demographic changes.
	The Impact of an Ageing Population on Economic Growth: An Exploratory Review of the Main Mechanisms	N. Renuga Nagarajan, Aurora A. C. Teixeira, and Sandra T. Silva (2016)	The three main ways an aging population affects economic growth are through changes in public spending, consumption and saving patterns, and human capital. Economists are not in agreement regarding effects on each area.
Demographics and FDI	Foreign Direct Investment and its Determinants: A Regional Panel Causality Analysis	Man-Wah Luke Chan, Keqiang Hou, Xing Li, and Dean C. Mountain (2014)	Study suggests that China should focus on increasing its education levels to enhance productivity, even though increased education is correlated with less FDI.
	The Interdependence of Immigration Restrictions and Expropriation Risk	Lena Calahorrano and Philipp an de Meulen (2015)	When a developed country invests in a developing country, emigration from the latter to the former reduces the risk of expropriation. However, as FDI increases, immigration is less accepted in the developed country.

In addition to the research summarized in Table 5, we should also consider

instances in which demographic advantages are undermined by ineffective government

policies or external economic considerations. For example, Brazil will have very healthy

demographics over the next thirty years, but its ongoing political and economic crises may undercut its investability. Euromonitor analysis explains that Brazil's GDP growth rate is expected to be -3.2% in 2016, slightly recovering from its -3.6% growth rate in 2015. Euromonitor cites "political and fiscal woes, loss of investor confidence as well as negative external factors such as falling commodity prices" as the major problems affecting Brazil in 2016. MNCs' decision to invest in Brazil or any other country is not only about economy, politics, cultural factors, or demographics, but about putting all these variables together to make an accurate analysis.

In conclusion, labor market dynamics, demographic bonuses, and aging populations will clearly affect worldwide business environments in the coming decades. MNCs should take into account the implicit advantages and risks when deciding where to invest. Since we have found these demographic factors in different studies, although not as a systematic measurement, this paper will focus on evaluating and organizing the impact of demographic factors in investment decision making, in order to further enhance the traditional investment toolkit.

III CHAPTER III: METHODOLOGY

Through the literature review, I listed different approaches that decision makers could consider before making a foreign investment. From the traditional FDI determinants to its relationship with demographic factors, including indexes and databases, I have established a necessary background and key factors to obtain a preliminary status about demographics in investment-decision academic research.

In this chapter, I will elaborate on the methodological aspects that will allow for the comprehension of the statistical analysis and the contribution of this document.

III.1 Research Question and Hypotheses

First of all, this study is intended to explore the following research questions: Do demographics enhance our ability to explain and predict foreign investment attractiveness? If so, which are the most important demographic factors to consider when investing in industrialized, emerging, and frontier countries? And finally, are demographic factors a determinant of both short and long-term investments?

These research questions originally provided very interesting potential results, the first one tackling a null hypothesis: demographics do not enhance our ability to explain and predict foreign investment attractiveness. In a world where demographics may become the exchange rate of economic and political power, this proved to be a revealing finding.

On the other hand, the alternative hypothesis stated that demographics do enhance our ability to explain and predict foreign investment attractiveness, describing clusters of countries with different characteristics, as well as short and long-term implications.

Based on the results, I am going to demonstrate that demographics do enhance our ability to explain and predict foreign investment attractiveness and I will indicate the demographic factors with the most influence and the clusters of countries in which demographics present higher significance levels both in the short and long-term.

The map below summarizes how the outcome was addressed:

Figure 2. Outcomes Regarding the Research Question
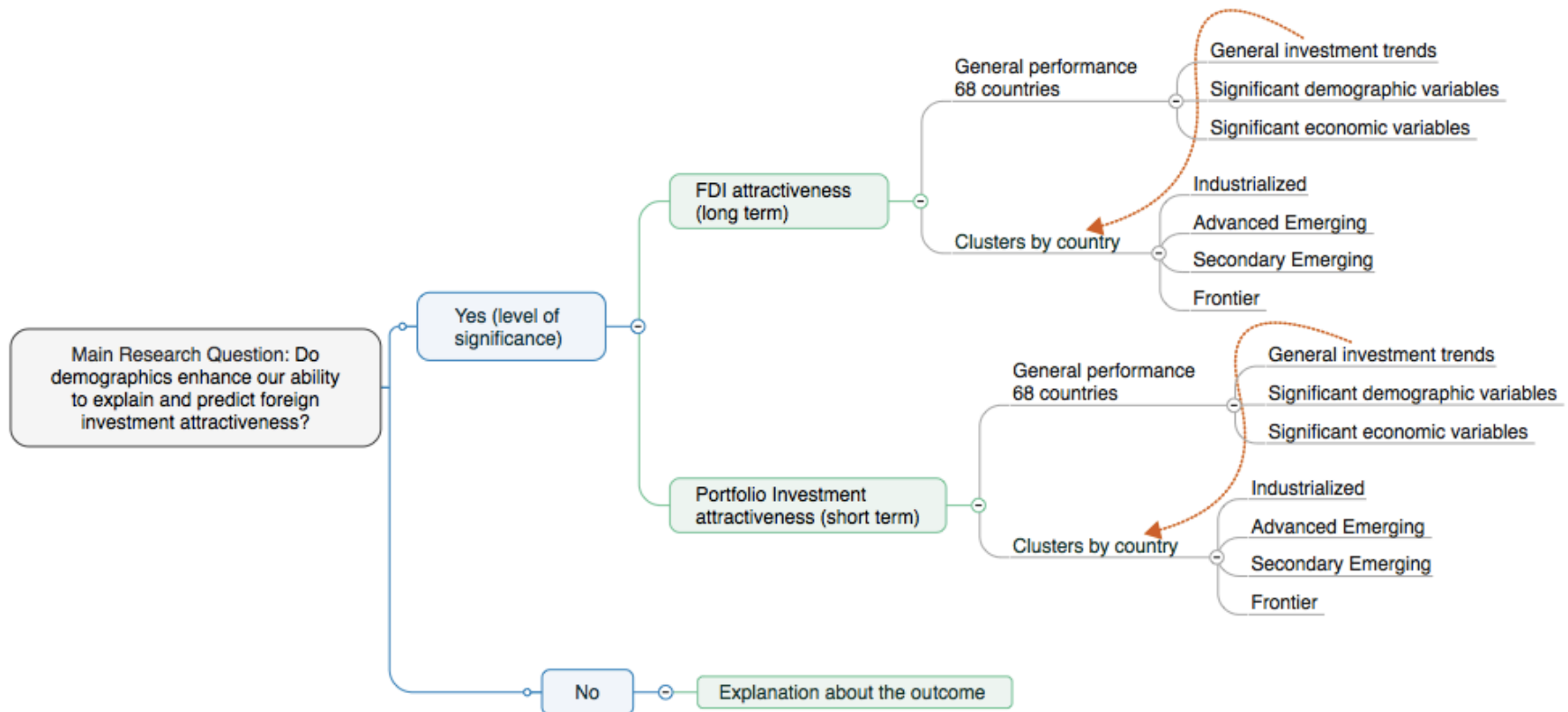
III.2 Data and Measurement

This is a quantitative case study research, based on secondary data. Country is the unit of analysis and I have chosen the list of 68 countries based on the FTSE Russell Annual Country Classification (FTSE and Russell Indexes have come together to establish a new global index leader). This source classifies markets specifically and it is a very well-known publication that exposes the level of development of the listed countries, reflecting the most relevant and accurate information about market structures, offering investors risk management insight into the regulatory and trading practices of the markets included in the global and regional indexes they track (FTSE Annual Country Classification). This study does not elaborate on the financial analysis, but it does take the classification of countries because it allows for an analysis of pre-selected clusters that highlight differences between industrialized, emerging, and frontier countries. See Table 6 below.

Table 6. FTSE Annual Country Classification

Developed	Advanced Emerging	Secondary Emerging	Frontier
Australia	Brazil	Chile	Bahrain
Austria	Czech Republic	China	Bangladesh
Belgium/Luxembourg	Greece	Colombia	Botswana
Canada	Hungary	Egypt	Bulgaria
Denmark	Malaysia	India	Côte d'Ivoire
Finland	Mexico	Indonesia	Croatia
France	Poland	Pakistan	Cyprus
Germany	South Africa	Peru	Estonia
Hong Kong	Taiwan	Philippines	Ghana
Ireland	Thailand	Qatar	Jordan
Israel	Turkey	Russia	Kenya
Italy		UAE	Latvia
Japan			Lithuania
Netherlands			Macedonia
New Zealand			Malta
Norway			Mauritius
Portugal			Morocco
Singapore			Nigeria
South Korea			Oman
Spain			Palestine
Sweden			Romania
Switzerland			Serbia
UK			Slovakia
USA			Slovenia
			Sri Lanka

			Tunisia
			Vietnam

This selection of countries will be a very useful starting point and, even though it does not include all countries around the world, I consider it to be a very representative sample.

III.2.1 *Variables to be Analyzed*

Throughout this study, I will use two main dependent variables: (1) Foreign direct investment inflows as a % of GDP (DV1), and (2) Portfolio investment inflows as a % of GDP (DV2), to address long and short term. These variables will be tested against a set of independent variables, both demographic and economic, looking for significant relationship levels that can help us to explain and predict foreign investment attractiveness.

Since Indexes can be a good starting point, to be able to select independent variables, I considered the demographic indicators from the GCI index and RCII, along with other variables gathered from external sources like The World Bank and The United Nations datasets in order to cover the main indicators pertinent to this study. See Table 7 below; the first part lists independent variables from indexes and the next one from external sources.

Table 7. Demographic independent variables from indexes and external sources

• Birth Rate	• Population Growth
• Death Rate	• Refugee Population by Country or Territory of Origin
• Life expectancy, years	• Total Population
• Population over 65 Years (% Total)	• Urbanization
• Population Density	

• Age dependency ratio	• Net migration rate
• Future population growth	• Population age 60 and above
• Future population growth due to momentum	• Total fertility rate
• Future population growth due to mortality improvements	• Tertiary Enrollment
• Higher education and training	• Urban population

In addition to the demographic indicators that I picked from indexes and external sources, I will use a set of economic variables that I have obtained from multiple sources to cross-reference information with the demographic variables. As I mentioned when I addressed the value of indexes in investment decision making, economic variables have been and will probably remain as the main predictors of investment; it is not the goal of this research to replace or disregard economic variables, but to enhance the analysis with demographic factors; that is why this study will analyze both kinds of indicators. Table 8, shown below, includes the economic variables that cover consumption, economy size, trade, unemployment, and wealth:

Table 8. Economic independent variables from indexes and external sources

• Exports of goods and services	• Household final consumption expenditure per capita
• GDP Growth	• Imports of goods and services
• GDP per Capita	• Trade (% of GDP)
• GDP, PPP	• Unemployment, total (% of total labor force)
• Gross domestic product	• Volume of exports of goods
• Household final consumption expenditure	• Volume of imports of goods • Volume of imports of goods and services

Finally, the significant variables that will be addressed over the results and discussion sections are listed below. Full definitions are in appendix I:

Table 9. Significant economic and demographic independent variables and its

codification

Economic Variables	SPSS Codification
Exports of goods and services (constant 2010 US$)	Exports_goods_servs_transformed
GDP growth (annual %)	GDP_growth_transformed
GDP per capita (constant 2010 US$)	GDPPcapita_transformed
Gross domestic product, constant prices	Grossdom_product_cons_pri_transformed
Household final consumption expenditure (constant 2010 US$)	Household_consumption_transformed
Household final consumption expenditure per capita (constant 2010 US$)	Householdconsum_expenditure_transformed
Imports of goods and services (constant 2010 US$)	Importgoods_services_transformed
Trade (% of GDP)	Trade_transformed
Volume of exports of goods and services	exports_goods_services_transformed
Volume of Imports of goods	Volume_Import_goods_transformed
Volume of imports of goods and services	Volume_imports_transformed
Demographic Variables	SPSS Codification
Age_depen_ratio	Age_depen_ratio_transformed
Birth_rate_crude	Birth_rate_crude_transformed
Death_rate_crude	Death_rate_crude_transformed
Fertility_rate	Fertility_rate_transformed
Life_expectancy	Life_expectancy_transformed
Population_65_above	Population_65_above_transformed
Pop_density	Pop_density_transformed
Pop_growth	Pop_growth_transformed
Pop_tot	Pop_tot_transformed
Urban population	Urban_popo_transformed

III.2.2 *Background for the Dependent Variables*

As a means to analyze the short and long-term correlations between the dependent and independent variables, I considered both aggregate domestic investment and foreign direct investment (FDI). However, because of the country level analysis I will conduct, FDI was favored because it is a more appropriate tool to demonstrate the statistical linkage we are pursuing; in addition, FDI is often the element that business people analyze when they are planning on investing abroad, and it will be helpful to measure long term investment.

In this context, the International Monetary Fund (IMF) accepts the definition published by the Organization for Economic Co-operation and Development (OECD), which is included in the fourth edition of the "OECD Benchmark Definition of Foreign Direct Investment."

> *Foreign direct investment reflects the objective of establishing a lasting interest by a resident enterprise in one economy (direct investor) in an enterprise (direct investment enterprise) that is resident in an economy other than that of the direct investor. The lasting interest implies the existence of a long-term relationship between the direct investor and the direct investment enterprise and a significant degree of influence on the management of the enterprise. The direct or indirect ownership of 10% or more of the voting power of an enterprise resident in one economy by an investor resident in another economy is evidence of such a relationship (Ibid., p. 48-49).*

Moreover, since FDI will be used to measure the long term, I have also added the Foreign Portfolio Investment (FPI) to the analysis in order to explore short-term investments and relationships, since this variable measures the investors' goal to create a quick return on their money in a way that is more liquid and less risky than FDI (Investopedia).

Foreign portfolio investment consists of securities and other financial assets passively held by foreign investors. It does not provide the investor with direct ownership

of financial assets and it is relatively liquid depending on the volatility of the market.

Foreign portfolio investment differs from foreign direct investment (FDI), in which a

domestic company runs a foreign firm, because although FDI allows a company to

maintain better control over the firm held abroad, it may face more difficulty selling the

firm at a premium price in the future. (Ibid.)

In the following section, I will describe the way in which I will conduct the

statistical analysis connecting all variables in order to get significant results according to

my research question.

III.3 Statistical Analysis

Since this study addresses how demographics could enhance our ability to explain

and predict foreign investment attractiveness in industrialized, emerging, and frontier

countries, in the short and long term, the following analysis is the result of a linear

regression model, based on the Ordinary Least Squares method (OLS) by different

clusters. This contemporary statistical analysis takes off at a starting point and reveals the

group's heterogeneity by showcasing the linear relationship among many demographic

and social and economic variables in regard to the FDI and FPI.

As I mentioned before, the set of data used in this research collects the

observations performed in 68 countries, according to the FSTE classification, from the

year 1960 to the year 2015. Simultaneously, a group of 32 variables, demographic and

economic, was chosen for being outstanding among the indexes discussed at the

beginning of the document, along with other indicators from renowned databases. Out of

all the observations, only those that proved themselves significant when expressing linear

relationships as a direct result of regressions are shown.

Through this process, I will compare economic and demographic indicators, which will help to explain current relations between independent and dependent variables in the best way possible.

III.3.1 *Dependent Variable Setup*

I used a natural logarithm for FDI (DV1) and PI (DV2), in order to stabilize the variables. The natural logarithm for the FDI inflows, as GDP percentages, and the FPI inflows, as GDP percentages was obtained for values bigger than 0 because this function can only work for positive values. Said transformation is commonly used in Econometrics, due to its usefulness to effectively reduce from the original scale without destabilizing the series variations while also respecting linear relations.

Since the original variable FDI (DV1) had already been converted into a GDP % drawn from the source, the natural logarithm used was:

(DV1): ln(FDI_inflows) = ln_fdi_inflows

For the variable PI (DV2), the quotient of the variable Port_Equity_inflows (Portfolio equity, net inflows (BoP, current US$)) was divided by GDPcurrentUS (GDP (current US$)) as follows:

$rate\_porequity\_gdp = ($ Port_Equity_inflows/ GDPcurrentUS)*100.

Afterwards, quotients bigger than 0 were selected, and the natural base logarithm (base e=2.7183) was used on them in order to stabilize the trend and finally be able to obtain the dependent variable

(DV2): ln_PI_inflows = ln pi inflows ($rate\_porequity\_gdp$)

III.3.2 *Independent Variable Setup*

Subsequently, the automated data setup was done using the IBM SPSS R24

software for independent variables, which were arranged as shown in the following table:

Automatic Data Preparation

Target: ln_portfolio_gdp

Field	Role	Actions Taken	Field	Role	Actions Taken
(Age_depen_ratio_transformed)	Predictor	Trim outliers Replace missing values			
(Birth_rate_crude_transformed)	Predictor	Trim outliers Replace missing values			
(Death_rate_crude_transformed)	Predictor	Trim outliers Replace missing values	(Net_migration_transformed)	Predictor	Trim outliers Replace missing values
(Domestic_mark_size_index_transformed)	Predictor	Trim outliers Replace missing values	(Pop_density_transformed)	Predictor	Trim outliers Replace missing values
(exports_goods_services_transformed)	Predictor	Trim outliers Replace missing values	(Pop_growth_transformed)	Predictor	Trim outliers Replace missing values
(Exports_goods_servs_transformed)	Predictor	Trim outliers Replace missing values	(Pop_tot_transformed)	Predictor	Trim outliers Replace missing values
(Fertility_rate_transformed)	Predictor	Trim outliers Replace missing values	(Population_65_above_transformed)	Predictor	Trim outliers Replace missing values
(Foreign_market_index_transformed)	Predictor	Trim outliers Replace missing values	(Refugee_pop_transformed)	Predictor	Trim outliers Replace missing values
(GDP_growth_transformed)	Predictor	Trim outliers Replace missing values	(Trade_transformed)	Predictor	Trim outliers Replace missing values
(GDP_PPP_transformed)	Predictor	Trim outliers Replace missing values	(Unemployment_transformed)	Predictor	Trim outliers Replace missing values
(GDPPcapita_transformed)	Predictor	Trim outliers Replace missing values	(Urban_pop_transformed)	Predictor	Trim outliers Replace missing values
(Grossdom_product_cons_pri_transformed)	Predictor	Trim outliers Replace missing values	(Volume_Import_goods_transformed)	Predictor	Trim outliers Replace missing values
(Household_consumption_transformed)	Predictor	Trim outliers Replace missing values	(Volume_imports_transformed)	Predictor	Trim outliers Replace missing values
(Householdconsum_expenditure_transformed)	Predictor	Trim outliers Replace missing values	(Volumeexports_goods_transformed)	Predictor	Trim outliers Replace missing values
(Importgoods_services_transformed)	Predictor	Trim outliers Replace missing values			
(Life_expectancy_transformed)	Predictor	Trim outliers Replace missing values			

If the original field name is X, then the transformed field is displayed as (X_transformed). The original field is excluded from the analysis and the transformed field is included instead.
One or more records were excluded because of a predictor or target that is missing, a frequency weight that is missing or less than one after rounding, or a regression weight that is missing, negative, or zero.

For the DV1 FDI, 4033 observations were originally obtained. As a result of the

process, 1397 observations were eliminated, leaving us with 2636 final observations. As

for the DV2, having the same number of initial observations as the DV1, 2647 were

eliminated during its due process, leaving us with a remaining 1386 final observations,

which served as the base for the data analysis carried out in this research.

III.3.3 *Modelling Technique*

This research used the Ordinary Least Squares Method (OLS) to be able to generate a linear regression model. The analysis was done through an SPSS automatic regression module, in order to project a log-linear regression model, and with Forward Stepwise, a variable selection method. Thus, the formula goes like this:

$$\ln(y) = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \cdots \beta_n x_n + u, \ \text{con } u \sim N(0, \sigma_u^2)$$

This procedure provides the data for the bar and tornado charts with the level of significance for each one of the predictors, the ANOVA chart (which illustrates the importance of the adjusted global model), the partial significance for variable coefficients table, confidence intervals, as well as the importance level for each one of the predictors. All of the aforementioned statistic data will be displayed on the charts.

IV CHAPTER IV: FINDINGS

This section will present an important number of significant demographic

variables, linear relationships with FDI (DV1) and Portfolio Investment (DV2), and

consistency in the appearance of demographic variables within the analysis of the general

list of countries and almost all clusters. Based on these results, we will be able to say if

demographics do enhance our ability to explain and predict investment attractiveness,

even when they are not necessarily the major determinants to explain it. Concurrently, the

most important demographic factors to consider when investing in industrialized,

emerging, and/or frontier countries will be listed, and the long and short-term

implications will be tested.

IV.1 Foreign Direct Investment

Results display the general behavior of the dependent variable (FDI) for all

countries and for clusters in general. Subsequently, graphs and charts exhibit

demographic and economic variables that can help explain FDI in all clusters.

The study presents the R^2, which stands for the % of significant variables that

make up the charts. Additionally, elements such as: coefficients (positive or negative),

the standard error, T test, significance, confidence intervals, and variable contributions to

the model are also included. In addition to the results, the importance level (last column

of the tables) of the main economic and demographic indicators will be mentioned as a

percentage, based on their importance to the model that explains the contribution of each

significant independent variable to the linear correlation between them and FDI (DV1).

Furthermore, the sum of the most representative kinds of variables, economic or

demographic, will be mentioned as well, in order to show the general trend of each cluster.

The relations between demographic and economic variables that explain foreign direct investment were examined using the IBM SPSS R24 software; the results are presented and rendered as follows:

IV.1.1 *General Analysis*

Firstly, I will show the FDI behavioral mean as a percentage of the GDP of the total 68 countries, as an introduction to the cluster analysis considered in this research. As can be observed, there was a significant general increase of FDI during the first decade of the 21st century, which culminated during the 2008-09 crisis, at which time investments went back to the initial levels of this indicator. It is important to emphasize how the trend remains consistent for all clusters. However, depending on the cluster, there are small time-related differences in the trend that could set apart the investment from one cluster to the next.

Figure 3. General FDI inflows
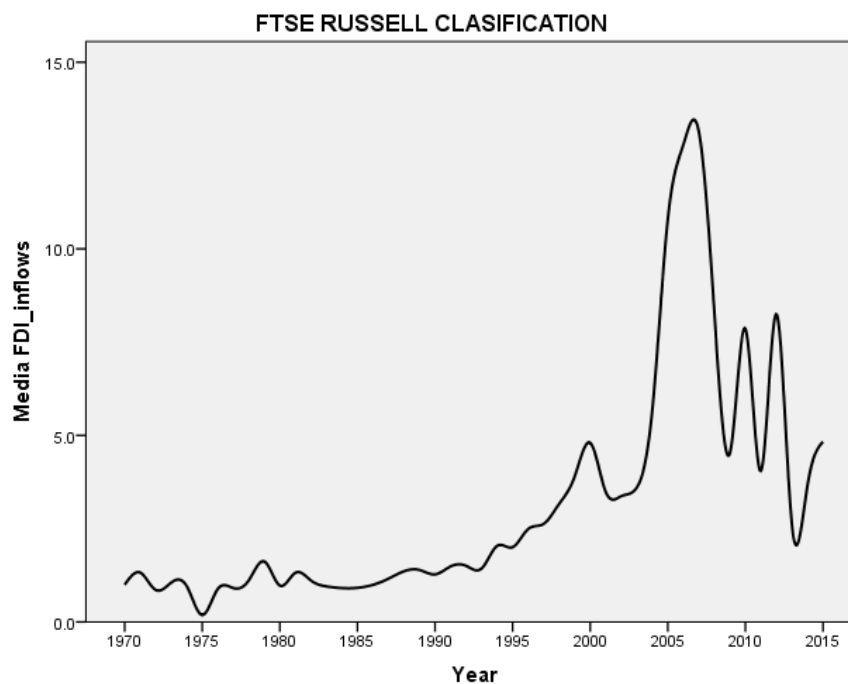
Up next, we can see the first demographic and economic variables graphs analyzed in relation to FDI. Since this study will follow a deductive way to present results, these first graphs and table show the overview of the 68 countries without yet showing the cluster classification. As previously mentioned, only those variables that proved to be significant and linear are shown for the purpose of this general analysis: 10 variables.

For this list of countries, we have an $R^2=0.387$, which indicates that the following variables help us to explain almost 39% in FDI's variability, while the remaining 61% is explained with the other variables that are not shown as linear to 0.05 in this research. The way in which I am presenting the results can be broken down like this: one graph with the variable's contribution level (or % contribution), a second graph pointing out

whether the contribution is negative or positive and, finally, a chart with the general results of all the significant variables.

Figure 4. FDI. General: Importance and coefficients of variables.

Predictor Importance

Target: ln_fdi_inflows

Coefficients

Target: ln_fdi_inflows
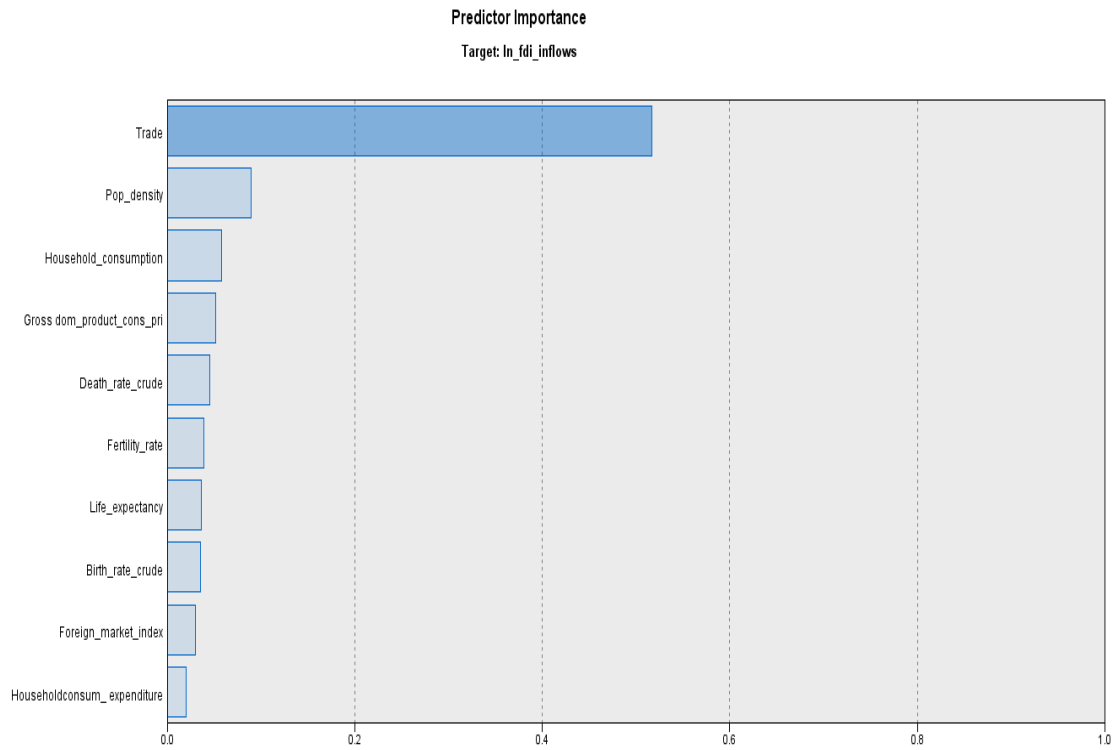
Table 10. FDI. General variable data.

Coefficients

Target: ln_fdi_inflows

Model Term	Coefficient ▼	Std.Error	t	Sig.	95% Confidence Interval		Importance
					Lower	Upper	
Intercept	-5.636	1.047	-5.382	.000	-7.689	-3.582	
Trade_transformed	0.020	0.001	25.968	.000	0.019	0.022	0.516
Pop_density_transformed	-0.002	0.000	-10.763	.000	-0.003	-0.002	0.089
Household_consumption_ transformed	0.000	0.000	8.706	.000	0.000	0.000	0.058
Grossdom_product_cons_pri_ transformed	0.066	0.008	8.172	.000	0.050	0.082	0.051
Death_rate_crude_transformed	0.118	0.015	7.653	.000	0.088	0.148	0.045
Fertility_rate_transformed	-0.575	0.081	-7.074	.000	-0.735	-0.416	0.038
Life_expectancy_transformed	0.077	0.011	6.857	.000	0.055	0.100	0.036
Birth_rate_crude_transformed	0.119	0.018	6.748	.000	0.085	0.154	0.035
Foreign_market_index_ transformed	-0.660	0.106	-6.243	.000	-0.867	-0.453	0.030
Householdconsum_expenditure_ transformed	-0.000	0.000	-5.130	.000	-0.000	-0.000	0.020

Analyzing this table is relevant to say that the significance value is one of the most important things to consider. The null hypothesis states that the demographic or economic variables are 0. The alternative hypothesis states that the coefficient is other than 0. The significance value must be bigger than 0.5 to accept the null hypothesis, which means that when using samples constantly, 95% of the cases will be 0. However, if the significance value is less than 0.5, the coefficient value will be other than 0, which will show a linear relationship between the variables and FDI. The more significance gets closer to a 0 value, the stronger the linear relationship among the compared variables becomes.

In the general analysis for the linear regression model for the 68 countries classified according to the FTSE, 5 demographic variables turned out to be statistically significant against 5 of their economic counterparts (previous table).

The most important economic variable is **Trade_transformed** with a 51.6% of the FDI inflows and a positive coefficient, the highest demographic variable was **Pop_density_transformed** with 8.9% and a negative coefficient.

For example, in the economic field, there seems to be a natural positive relationship between FDI inflows and **Trade_transformed**, showing a remarkable linkage to exports and imports. Based on this finding, we can conclude that the higher the trade level in a country, the more foreign investment it will attract.

On the other hand, the variable **Pop_density_transformed** turning out negative in the first analysis implies that the bigger the influence on this variable, the lesser the chances for investment there will be for the affected countries; this first finding could set

an important paradigm among the rest of the demographic indicators, given the fact that growing populations in smaller territories are not attracting FDI.

Since 68% of the significant 10 indicators addressed in this section are economic, overall and for the full list of countries, it is clear that FDI can be explained by economic indicators rather than by demographic variables, especially by trade. However, contributing demographic variables can also aid and even enhance our understanding of FDI trends.

IV.1.2 *Developed Countries*

Up next, we can see an analysis of the first of four clusters according to the FTSE classification. The graphs and table for developed countries show the following:

Figure 5. Developed cluster FDI inflows
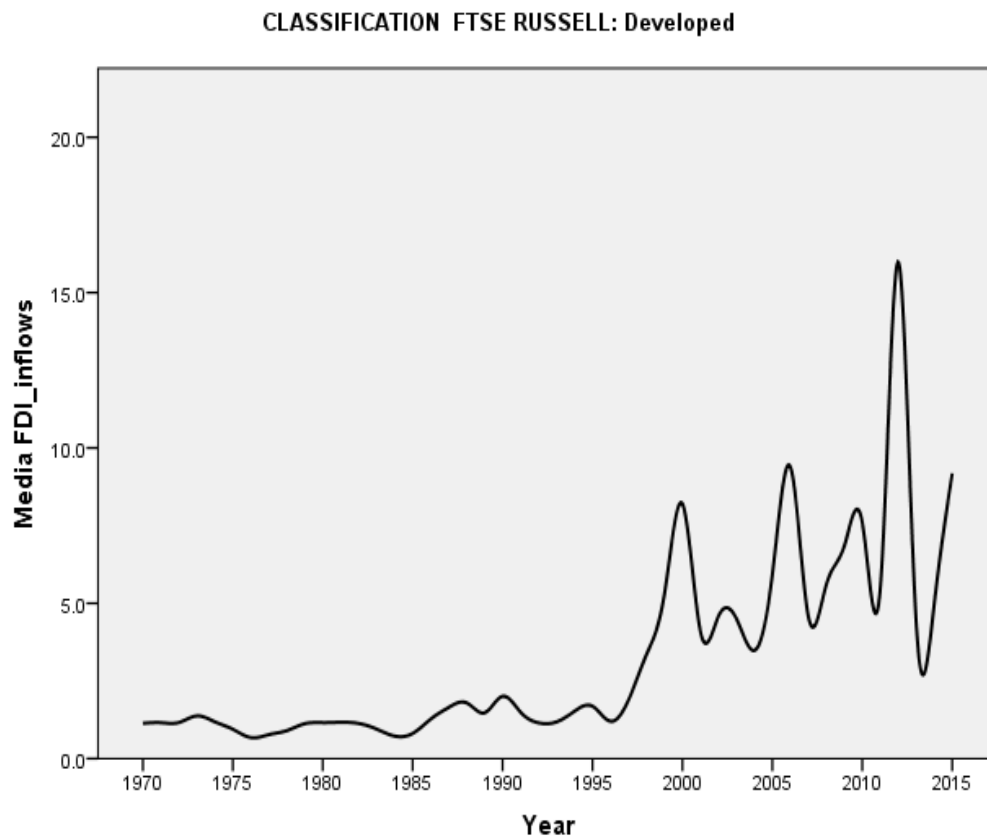
In the group of developed countries, there is an evident delayed effect, product of the drop in FDI before the 08-09 crisis as well as afterwards, but, contrary to the general graph, the recovery is much more outstanding, showing a record growth starting in 2012.

Up next, we can see the demographic and economic graphs analyzed in relation to FDI for this cluster.

Figure 6. FDI. Developed cluster: importance and coefficients of variables
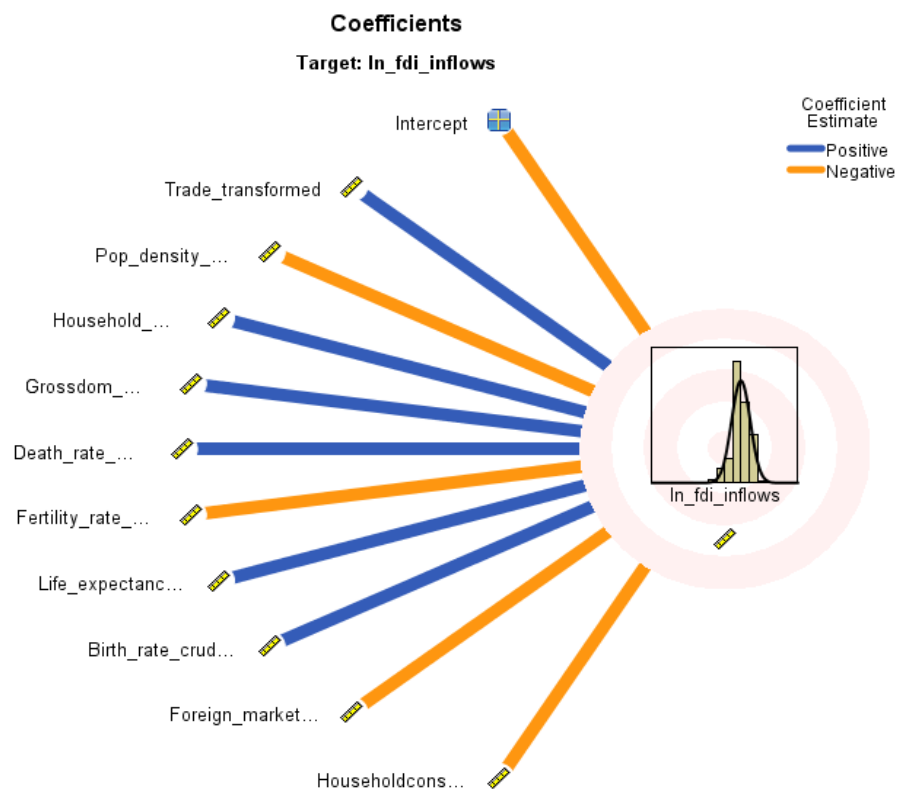
Table 11. FDI. Developed cluster variable data.

Coefficients
Target: ln_fdi_inflows

| Model Term | Coefficient ▼ | Std.Error | t | Sig. | 95% Confidence Interval | | Importance |
					Lower	Upper	
Intercept	-0.619	1.652	-0.375	.708	-3.861	2.623	
Trade_transformed	0.019	0.001	13.822	.000	0.016	0.021	0.459
Household_consumption_transformed	0.000	0.000	7.444	.000	0.000	0.000	0.133
Pop_density_transformed	-0.002	0.000	-6.021	.000	-0.002	-0.001	0.087
Exports_goods_servs_transformed	0.000	0.000	5.834	.000	0.000	0.000	0.082
Householdconsum_expenditure_transformed	-0.000	0.000	-4.524	.000	-0.000	-0.000	0.049
GDPPcapita_transformed	0.000	0.000	3.911	.000	0.000	0.000	0.037
Pop_tot_transformed	-0.000	0.000	-3.627	.000	-0.000	-0.000	0.032
Volume_Import_goods_transformed	0.017	0.005	3.294	.001	0.007	0.028	0.026
GDP_PPP_transformed	-0.000	0.000	-3.142	.002	-0.000	-0.000	0.024
Foreign_market_index_transformed	-0.569	0.187	-3.041	.002	-0.936	-0.202	0.022

In this cluster, calculations gave an R2=0.567 which means that 56.7% of the FDI variation within this cluster can be explained by bearing 10 statistically significant variables. Out of these variables, 2 are demographic and 8 are economic.

Following the same trend as that of the general analysis, the economic variable with the highest importance is **Trade_transformed**, with a contribution of 45%, followed by **Household_consumption_transformed**, which represents 13%, both with positive coefficients.

The demographic leading variable shows the same trend as well, being **Pop_density_transformed**, with 8.7%, the one with the highest importance (with a negative coefficient).

This cluster basically confirms the trend of the general results, leveraging the number of economic indicators explaining 83% of FDI, and emphasizing the weight of the developed cluster in the general outcome for this DV1.

IV.1.3 *Advanced Emerging Countries*

Up next, we can see an analysis of the second of four clusters according to the FTSE classification. The graphs and table for Advanced Emerging show the following:

Figure 7. FDI. Advanced Emerging cluster FDI inflows
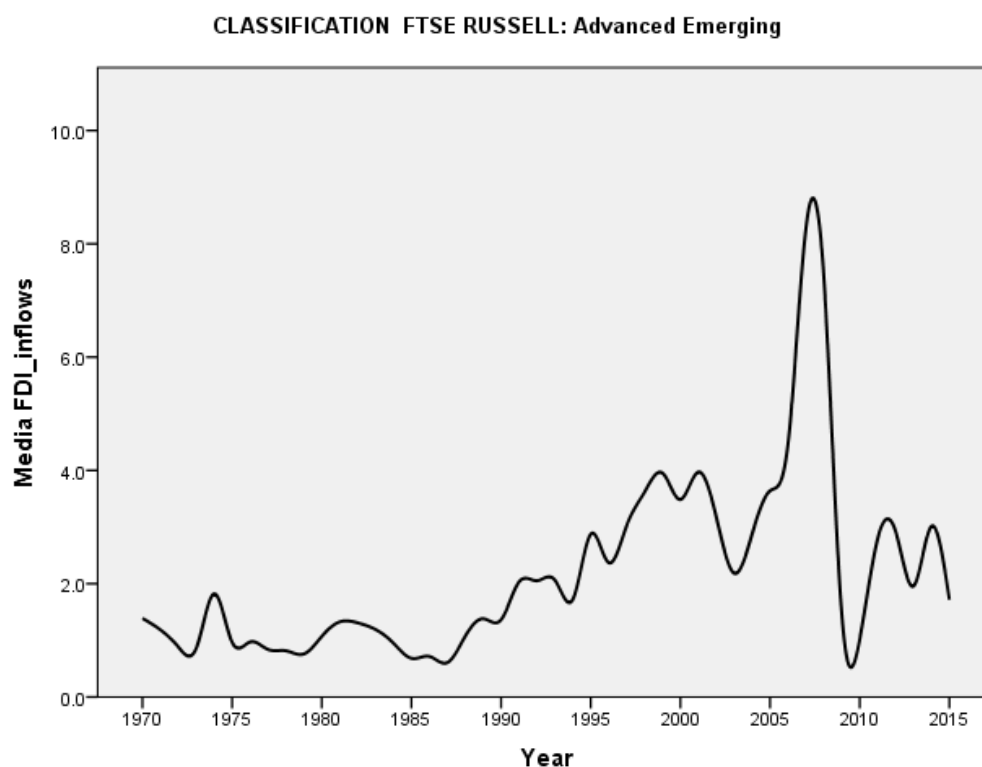
In this cluster, similarly to the general FDI graph, we can see how investment declined significantly during the crisis, but unlike the developed cluster, it does not have a notable recovery. In fact, it shows its recovery is indeed winding down.

Afterwards, we can see the demographic and economic graphs analyzed in relation to FDI set in this cluster's context

Figure 8. FDI. Advanced Emerging cluster: importance and coefficients of variables

Table 12. FDI. Advanced Emerging cluster variable data.

Coefficients

Target: ln_fdi_inflows

Model Term	Coefficient ▼	Std.Error	t	Sig.	95% Confidence Interval		Importance
					Lower	Upper	
Intercept	-5.335	2.602	-2.050	.041	-10.452	-0.217	
Trade_transformed	0.018	0.002	7.686	.000	0.013	0.023	0.221
Urban_pop_transformed	0.000	0.000	5.534	.000	0.000	0.000	0.115
Householdconsum_expenditure_transformed	-0.000	0.000	-5.496	.000	-0.000	-0.000	0.113
GDP_PPP_transformed	0.000	0.000	4.236	.000	0.000	0.000	0.067
Death_rate_crude_transformed	0.169	0.041	4.144	.000	0.089	0.250	0.064
Pop_tot_transformed	-0.000	0.000	-4.088	.000	-0.000	-0.000	0.063
Foreign_market_index_transformed	-1.241	0.317	-3.911	.000	-1.865	-0.617	0.057
Life_expectancy_transformed	0.093	0.024	3.808	.000	0.045	0.141	0.054
Volume_Import_goods_transformed	-0.044	0.012	-3.761	.000	-0.066	-0.021	0.053
Exports_goods_servs_transformed	-0.000	0.000	-3.614	.000	-0.000	-0.000	0.049

In this case, there was an R^2=0.557. This cluster shows 4 significant demographic variables against 6 economic variables.

Here we can notice the consistency among these results, the previous cluster, and the results on the general list regarding **Trade_transformed** yielding the largest contribution, but in this case with only 22% (positive).

From the demographic variables, **Urban_pop_transformed**, with 11.5%, had the highest importance with a positive coefficient, delivering an additional finding for this cluster: the higher the urban population, the better the FDI.

Overall, economics were still the outstanding indicators, explaining 56% of the FDI, but this cluster showed a hefty balance between demographic and economic forces.

IV.1.4 *Secondary Emerging Countries*

Ensuing, there is an analysis of the third of four clusters according to the FTSE classification. The graphs and table for Secondary Emerging countries show the following:

Figure 9. FDI. Secondary Emerging cluster FDI inflows
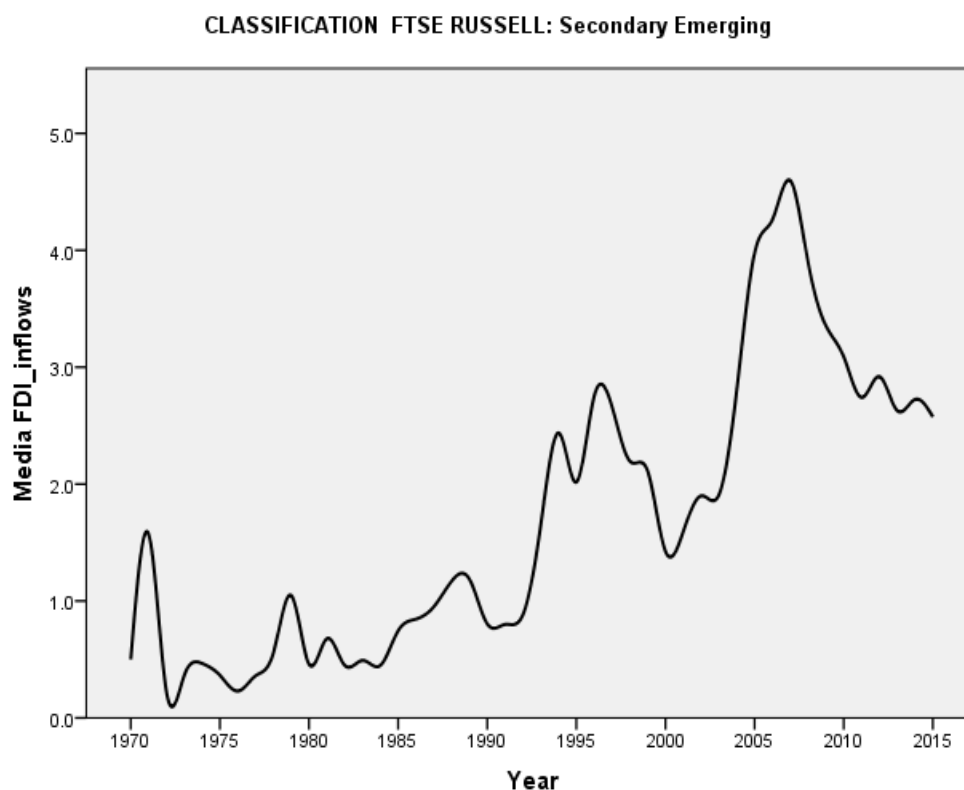
For this cluster, it is necessary to point out that FDI behavior during the crisis was similar to that of the other clusters' but this cluster presents a lower percentage of investment as % of GDP. Besides, it does not show a later recovery, to a greater or lesser extent, like the one observed in developed countries and the general chart.

Up next, we can see the demographic and economic graphs analyzed in relation to FDI in the context set by this cluster.

Figure 10. FDI. Secondary Emerging cluster: importance and coefficients of variables

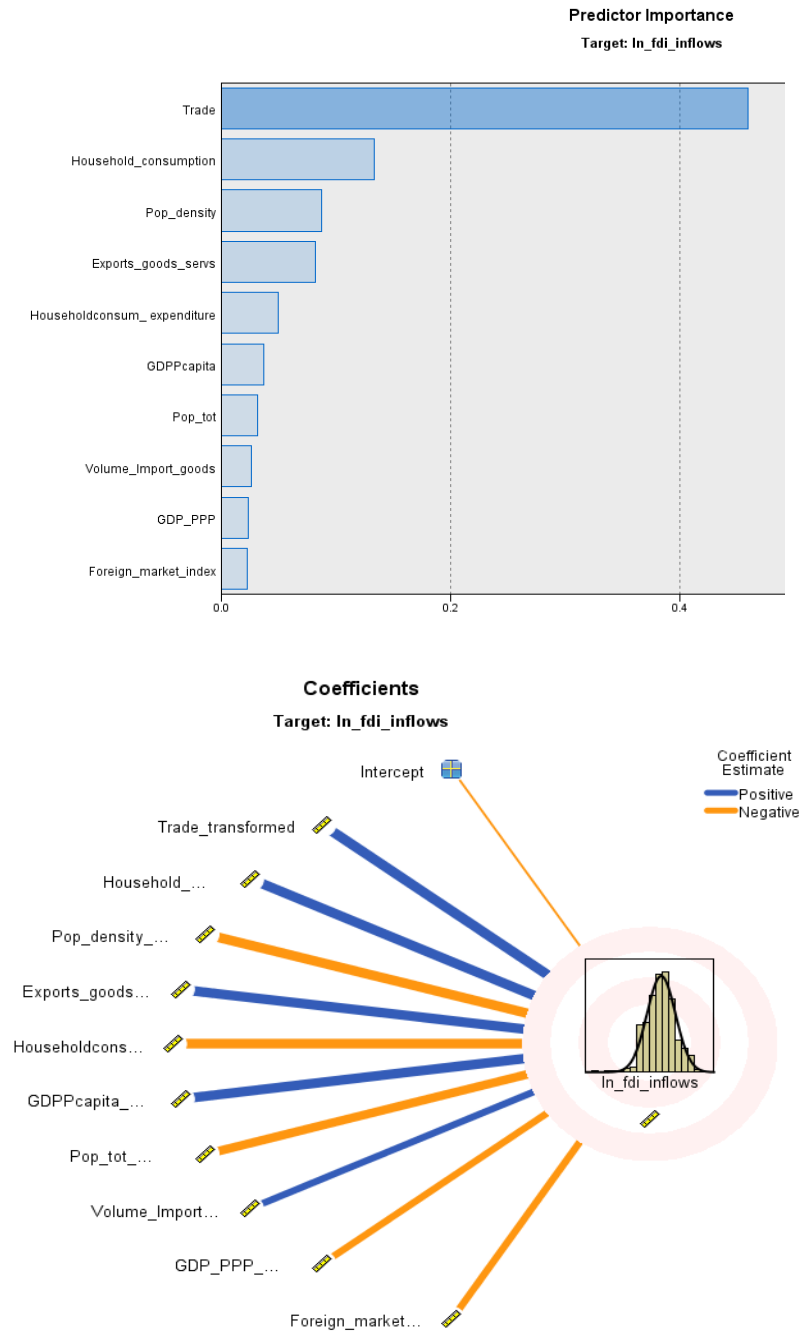Coefficients

Target: ln_fdi_inflows
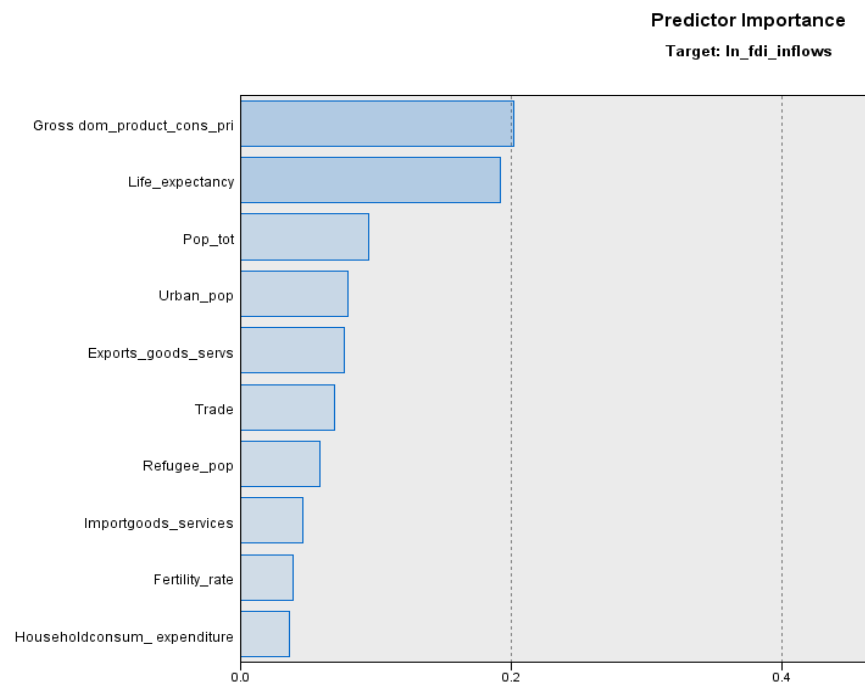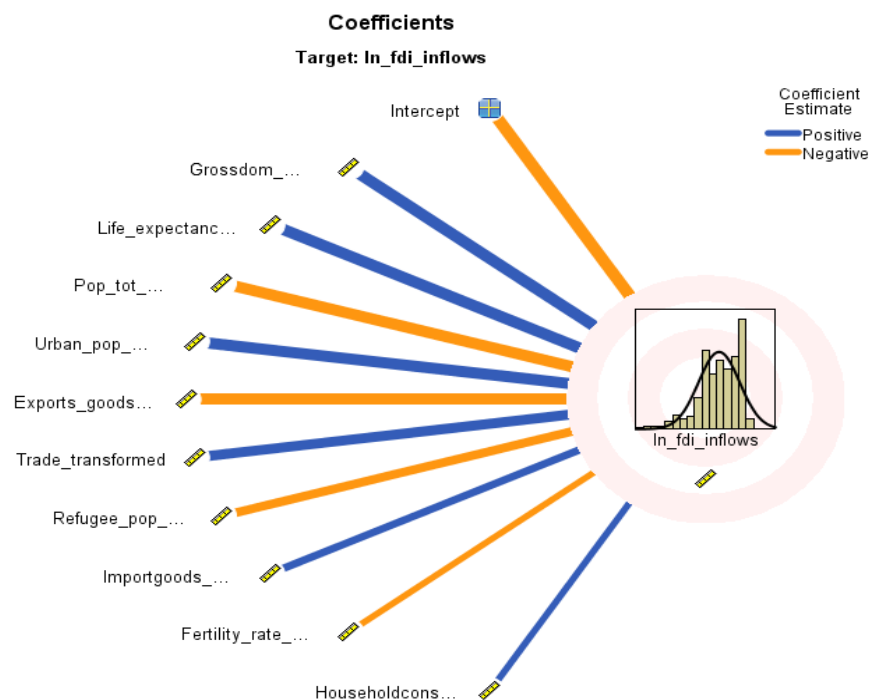
Table 13. FDI. Secondary Emerging cluster variable data.

Coefficients

Target: ln_fdi_inflows

Model Term	Coefficient ▼	Std.Error	t	Sig.	95% Confidence Interval		Importance
					Lower	Upper	
Intercept	-9.220	1.626	-5.671	.000	-12.415	-6.025	
Grossdom_product_cons_pri_transformed	0.088	0.014	6.428	.000	0.061	0.115	0.201
Life_expectancy_transformed	0.110	0.018	6.272	.000	0.076	0.144	0.192
Pop_tot_transformed	-0.000	0.000	-4.398	.000	-0.000	-0.000	0.094
Urban_pop_transformed	0.000	0.000	4.037	.000	0.000	0.000	0.079
Exports_goods_servs_transformed	-0.000	0.000	-3.966	.000	-0.000	-0.000	0.077
Trade_transformed	0.011	0.003	3.776	.000	0.005	0.016	0.069
Refugee_pop_transformed	-0.000	0.000	-3.459	.001	-0.000	-0.000	0.058
Importgoods_services_transformed	0.000	0.000	3.059	.002	0.000	0.000	0.046
Fertility_rate_transformed	-0.431	0.153	-2.812	.005	-0.733	-0.130	0.039
Householdconsum_expenditure_transformed	0.000	0.000	2.711	.007	0.000	0.000	0.036

In this case, an R^2=0.564 was found. This cluster shows 5 demographic and 5

economic significant variables. Of the economic variables,

Grossdom_product_cons_pri_transformed stands out with the largest contribution, of

20%, and a positive coefficient.

All the demographic variables, except for **Life_expectancy_transformed**,

presented a negative coefficient, and this last indicator also stands out with the highest

importance, with a value of 19.2%.

This cluster displays new leading variables but, in addition to that, continues the

trend towards a better balance, shifting the representation of economic variables with

43% versus 46% from the demographic side.

IV.1.5 *Frontier Countries*

Finally, an analysis of the fourth cluster according to the FTSE classification. The

graphs and table for Frontier countries show the following:

Figure 11. FDI. Frontier cluster FDI inflows

CLASSIFICATION FTSE RUSSELL: Frontier
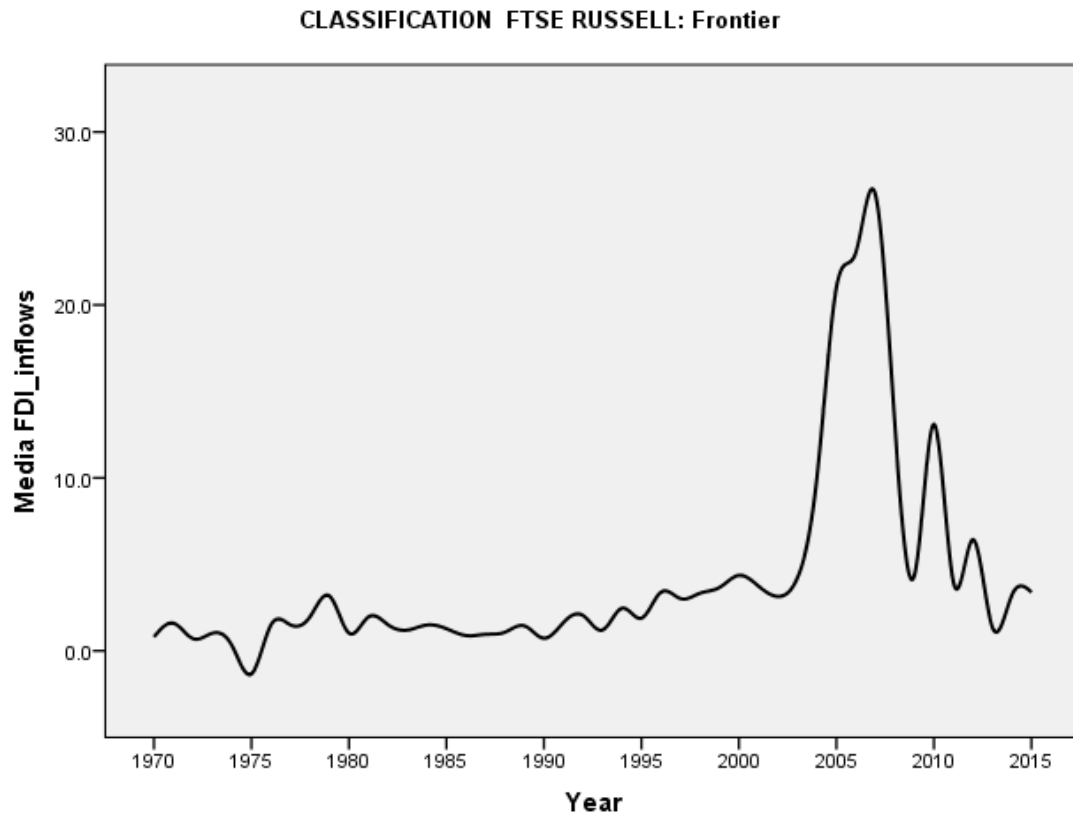
Here we can clearly appreciate the largest investment as a % of the GDP, out of

the 4 clusters before the 08-09 crisis; just like in the others, there is also a very strong

decline after the crisis. However, this cluster does not show recovery.

Afterwards, we can see the demographic and economic graphs analyzed in

relation to FDI in the context for this cluster.

Figure 12. FDI. Frontier cluster: importance and coefficients of variables
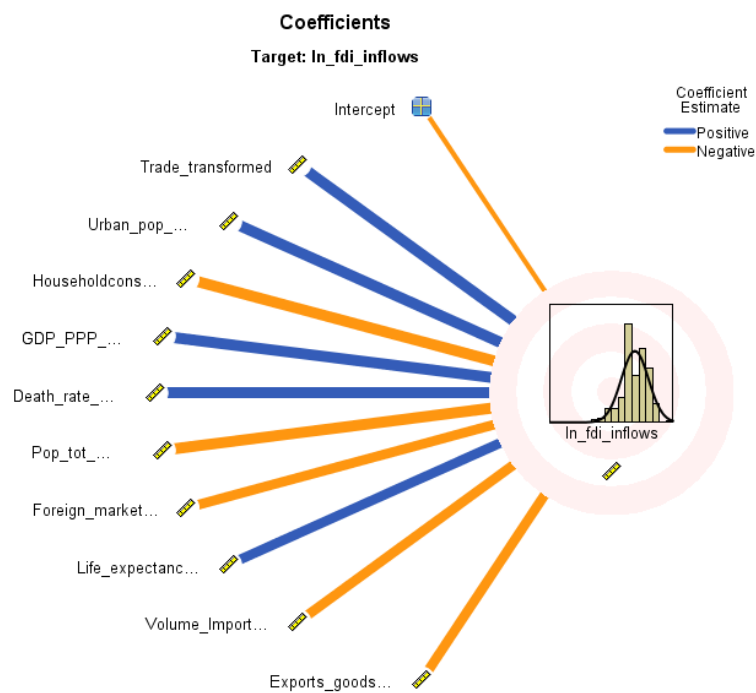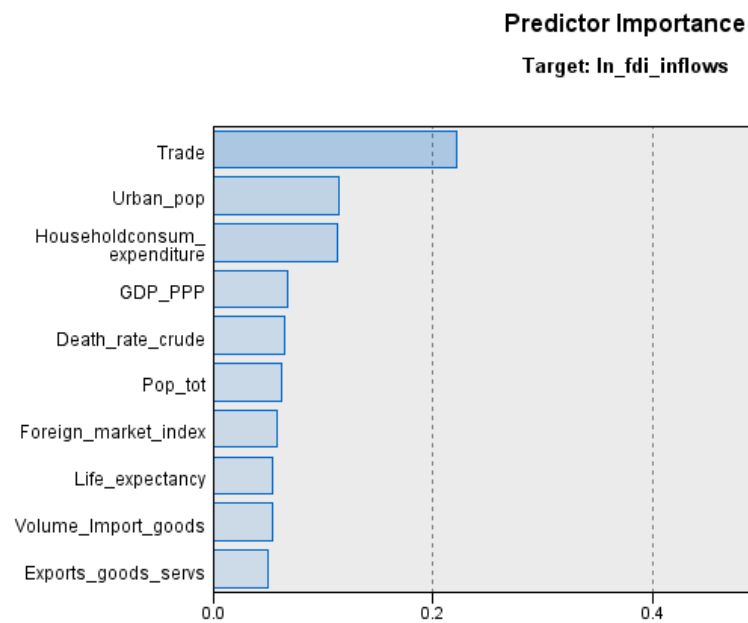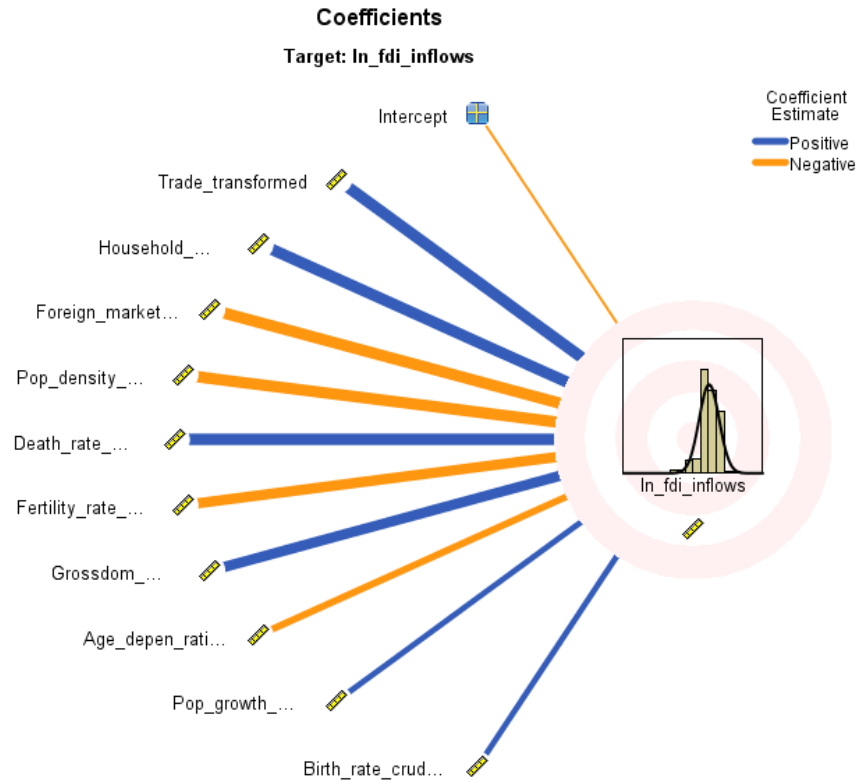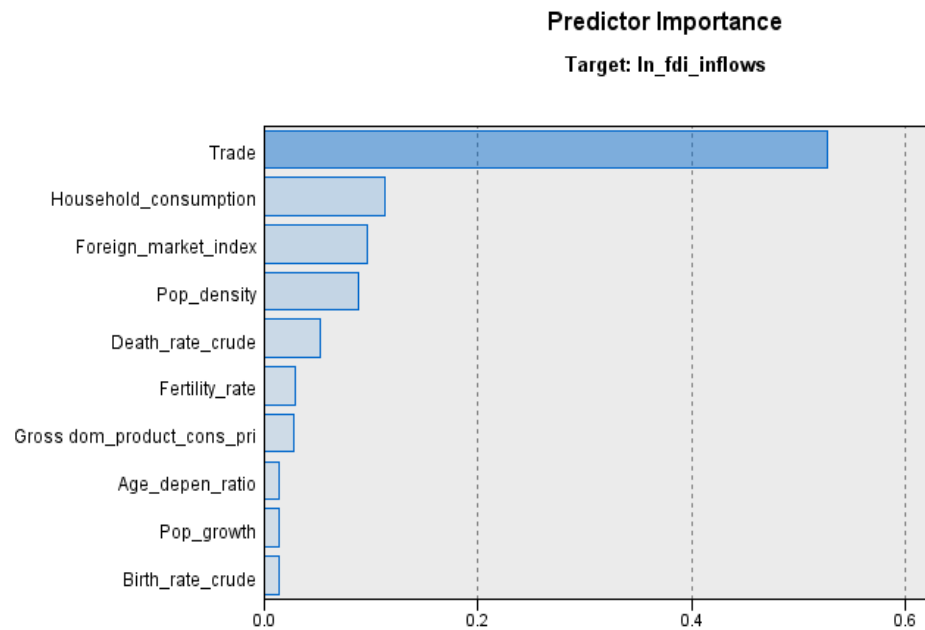
Table 14. FDI. Frontier cluster variable data.

Coefficients

Target: ln_fdi_inflows

| Model Term | Coefficient ▼ | Std.Error | t | Sig. | 95% Confidence Interval | | Importance |
					Lower	Upper	
Intercept	-0.289	1.816	-0.159	.873	-3.853	3.274	
Trade_transformed	0.026	0.002	15.791	.000	0.023	0.029	0.527
Household_consumption_ transformed	0.000	0.000	7.326	.000	0.000	0.000	0.113
Foreign_market_index_ transformed	-1.490	0.221	-6.749	.000	-1.923	-1.056	0.096
Pop_density_transformed	-0.002	0.000	-6.436	.000	-0.002	-0.001	0.088
Death_rate_crude_transformed	0.135	0.027	4.993	.000	0.082	0.187	0.053
Fertility_rate_transformed	-0.501	0.137	-3.659	.000	-0.770	-0.232	0.028
Grossdom_product_cons_pri_ transformed	0.052	0.014	3.610	.000	0.024	0.080	0.028
Age_depen_ratio_transformed	-0.019	0.007	-2.589	.010	-0.033	-0.004	0.014
Pop_growth_transformed	0.164	0.064	2.572	.010	0.039	0.290	0.014
Birth_rate_crude_transformed	0.070	0.028	2.518	.012	0.015	0.125	0.013

In this cluster, an R^2=0.429 was found; 4 economic and 6 demographic variables stand out. As far as the economic factors go, **Trade_transformed** appears again as the leader of all variables with a value of 52.7% of importance

From the demographic variables, **Pop_density_transformed** shows the highest importance value, with a contribution of 8.8% and a negative coefficient, replicating the exact same trend that we observed in the general analysis and in the developed cluster.

This cluster, once again, shows a certain balance between the number of economic and demographic variables, but in this case, the real contribution is palpably economic with a staggering 76% total significance.

IV.1.6 *Final Comments on FDI Analysis*

The FDI behavioral graphs as a percentage of GDP have shown the general differences in FDI in the 4 clusters. In this graph, we can summarize the clear behavioral discrepancies between the clusters in the two extremes, where the frontier cluster shows the highest rate of FDI prior to the crisis in 08-09 and its subsequent fall and lack of recovery, while the developed cluster has not had such explosive rates in FDI, but its recovery after the crisis has been the most outstanding of the four clusters. On the other hand, the graph contrasts the behavior of the two groups of emerging countries after the crisis compared to the clusters at the top and the bottom.

Figure 13. FDI for the 4 clusters.
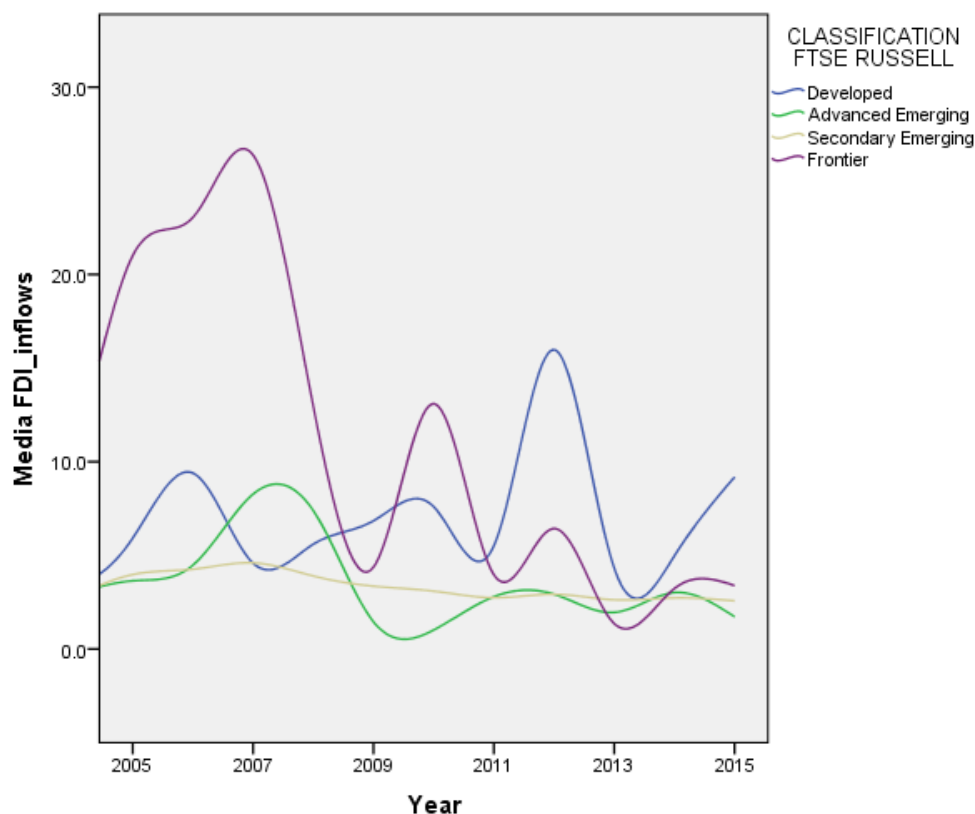
Regarding the economic and demographic contribution to explain FDI, there was a clear trend from economic dominance to a certain balance between both forces, from

the developed cluster to emerging clusters. But in general terms, the contribution of the economic variables was remarkable, even when some clusters maintained their balance by considering the number of total variables playing a role.

Concerning specific variables, **trade** showed an outstanding contribution, appearing as the most relevant economic factor in 3 out of the 4 clusters and with a very high percentage of importance, followed by **population density** from the demographic pool of indicators.

IV.2 Portfolio Investment

In a similar way to how FDI was previously presented, in this section results display the general behavior of the dependent variable II (DV2) Portfolio Investment (PI), for all countries and clusters. Subsequently, graphs and charts are shown to exhibit demographic and economic variables that can help explain PI. Such as in the former section, an R^2 will be given to each cluster and the contribution of the variables will be presented following the same logic and structure; the variables' contributions will be examined using the same software.

For this part of the analysis, Portfolio equity, net inflows (% of GDP) will be addressed for the 68 countries. Like the DV1, this indicator was taken from the International Monetary Fund, Balance of Payments database, and World Bank International Debt Statistics.

IV.2.1 *General Analysis*

As can be observed in the general graph, there was an interesting growth in PI from 1995 on, which was severely affected in the 2008 crisis. Just as FDI, PI showed a fast recovery, but a second fall was experienced soon thereafter. Overall, we will see an

erratic trend that remains steady, but, surprisingly, 2015 displayed remarkable ups in this story.

Figure 14. PI. General Portfolio Investment
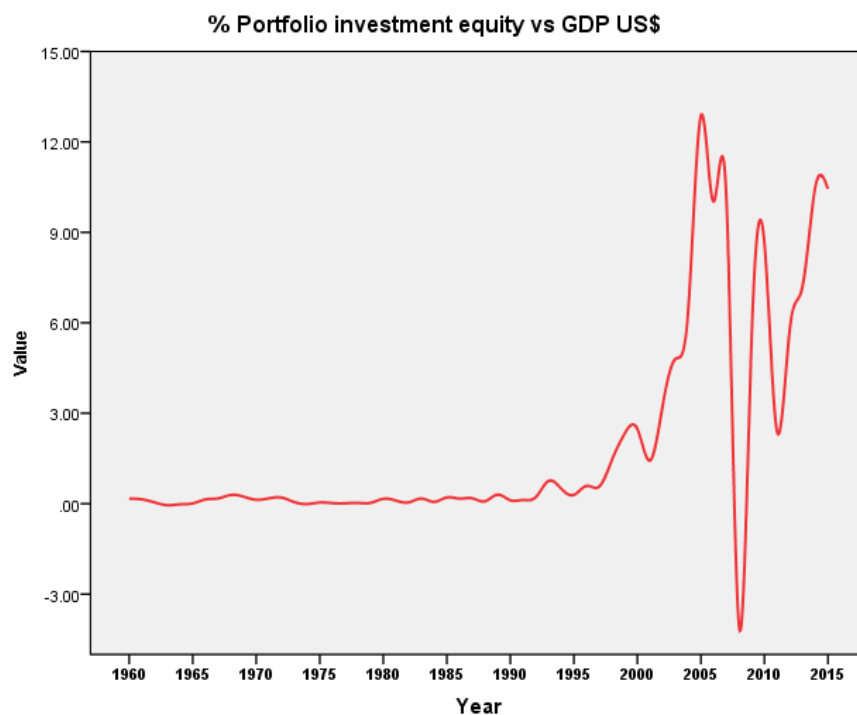
Up next, we can see the first demographic and economic variables analyzed according to their relationship with PI. Being consistent with FDI analysis, only those variables that proved themselves significant and linear are shown, in this general table: 10 variables

For this list of countries, we have an R^2=0.255, which indicates that the following variables help us explain 25.5% in Portfolio Investment variability, while the remaining 74.5% is explained by the variables that are not shown as linear to 0.05 in this research. Just like I did before, the results consist of one graph with the variable's contribution level (or % contribution), a second graph pointing out whether the contribution is

negative or positive and, finally, a chart with the general results of all the significant variables.

Figure 15. PI. General: Importance and coefficients of variables
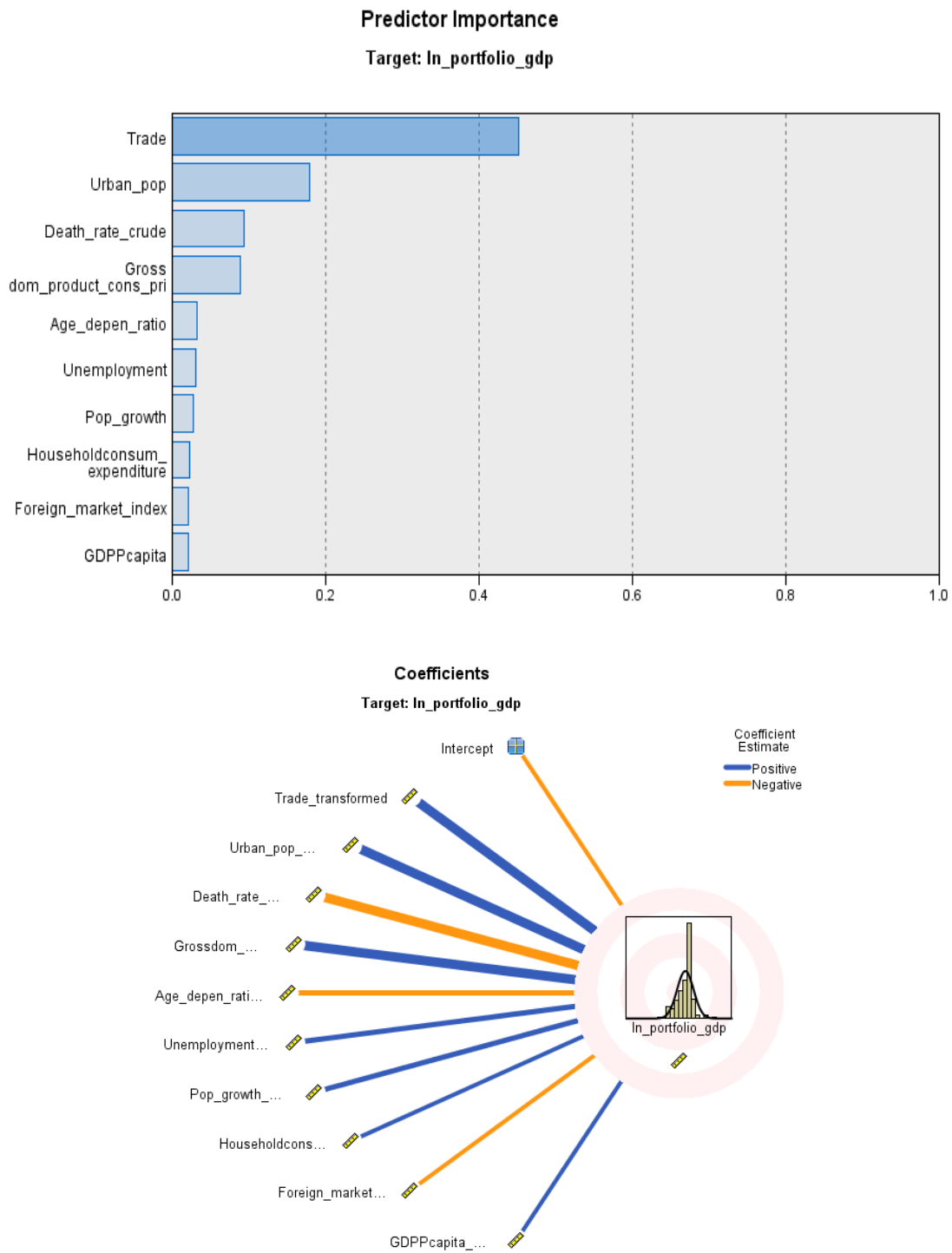
Table 15. PI. General variable data

Coefficients

Target: ln_portfolio_gdp

Model Term	Coefficient ▼	Std.Error	t	Sig.	95% Confidence Interval		Importance
					Lower	Upper	
Intercept	-1.379	0.589	-2.340	.019	-2.534	-0.223	
Trade_transformed	0.016	0.001	10.430	.000	0.013	0.019	0.452
Urban_pop_transformed	0.000	0.000	6.562	.000	0.000	0.000	0.179
Death_rate_crude_transformed	-0.101	0.021	-4.760	.000	-0.142	-0.059	0.094
Grossdom_product_cons_pri_ transformed	0.071	0.015	4.635	.000	0.041	0.101	0.089
Age_depen_ratio_transformed	-0.015	0.005	-2.802	.005	-0.026	-0.005	0.033
Unemployment_transformed	0.030	0.011	2.680	.007	0.008	0.053	0.030
Pop_growth_transformed	0.158	0.061	2.587	.010	0.038	0.277	0.028
Householdconsum_expenditure_ transformed	0.000	0.000	2.304	.021	0.000	0.000	0.022
Foreign_market_index_ transformed	-0.214	0.095	-2.260	.024	-0.399	-0.028	0.021
GDPPcapita_transformed	0.000	0.000	2.210	.027	0.000	0.000	0.020

In this general analysis for the linear regression model for the 68 countries classified according to the FTSE, 4 demographic variables turned out to be statistically significant against 6 of their economic counterparts (previous table).

The most important economic variable is **Trade_transformed**, with a 45.2% contribution to the Portfolio Investment inflows and a positive coefficient. The highest demographic variable was **Urban_pop_transformed**, with 17.9% and a positive coefficient.

From these first findings, we can confirm that the independent variable **trade** is not the only one leading FDI, it leads PI too, at least in the general analysis, but in this

case, ***urban population*** replaces **population density** as the most important demographic variable, which can of course be related to investment in developed countries, and in emerging or frontiers with higher urban development as well. Overall, economics were still the outstanding indicators explaining 63% of the variable's importance.

IV.2.2 *Developed Countries*

Up next, we can see an analysis of the first of four clusters according to the FTSE classification. The graph and table for developed countries show the following:

Figure 16. PI. Developed cluster Portfolio Investment
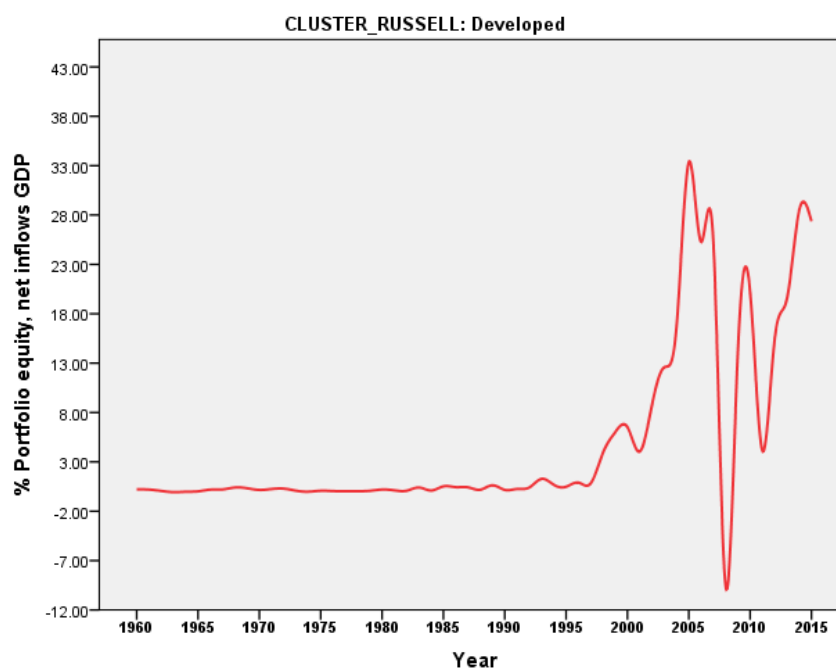
In the group of developed countries, there is an evident effect resulting from the 08-09 crisis as well as afterwards, but, the most striking finding is that in comparison to the same FDI indicator, which never went behind 0% of GDP or above 17%, this cluster reached almost 35% in its golden days and got negative numbers when the financial crisis hit.

Up next, we can see the demographic and economic graphs analyzed in relation with portfolio investment for this cluster.

Figure 17. PI. Developed cluster: Importance and coefficients of variables
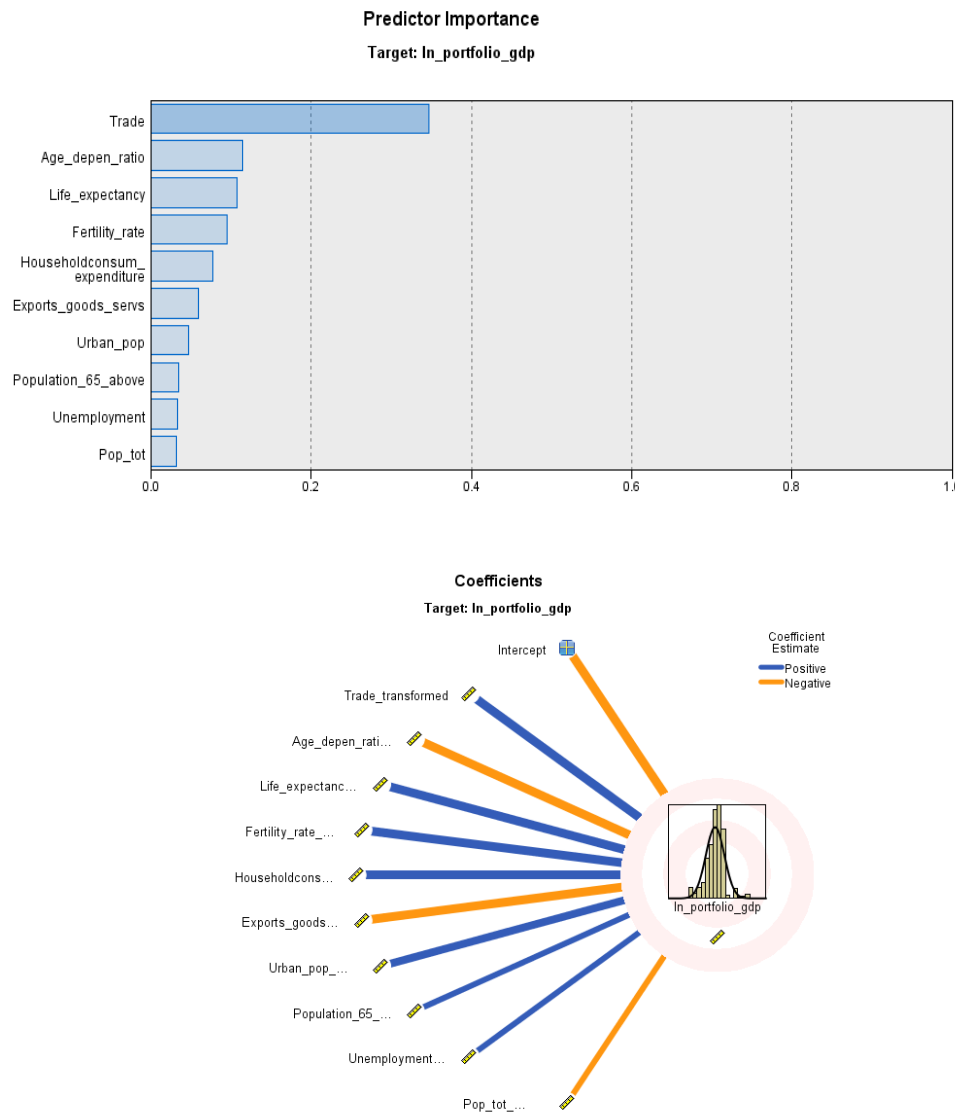
Table 16. PI. Developed cluster variable data.

Coefficients

Target: ln_portfolio_gdp

| Model Term | Coefficient ▼ | Std.Error | t | Sig. | 95% Confidence Interval | | Importance |
					Lower	Upper	
Intercept	-13.254	2.392	-5.540	.000	-17.951	-8.556	
Trade_transformed	0.023	0.002	10.004	.000	0.018	0.027	0.346
Age_depen_ratio_transformed	-0.108	0.019	-5.748	.000	-0.145	-0.071	0.114
Life_expectancy_transformed	0.154	0.028	5.568	.000	0.100	0.208	0.107
Fertility_rate_transformed	1.431	0.274	5.223	.000	0.893	1.969	0.094
Householdconsum_expenditure_transformed	0.000	0.000	4.701	.000	0.000	0.000	0.076
Exports_goods_servs_transformed	-0.000	0.000	-4.122	.000	-0.000	-0.000	0.059
Urban_pop_transformed	0.000	0.000	3.690	.000	0.000	0.000	0.047
Population_65_above_transformed	0.095	0.030	3.150	.002	0.036	0.155	0.034
Unemployment_transformed	0.083	0.027	3.110	.002	0.031	0.136	0.033
Pop_tot_transformed	-0.000	0.000	-3.053	.002	-0.000	-0.000	0.032

In this cluster, calculations gave an $R^2=0.456$ which means that 45.6% of the portfolio investment variation within this cluster can be explained by the resulting 10 statistically significant variables. Of these variables, 6 are demographic and 4 are economic.

Following the same trend as the general analysis, the economic variable with the highest importance is **Trade_transformed**, with a contribution of 34.6%, but in this case, the leading variable is followed by 3 demographic indicators in a row contributing with 31% all together. In comparison to the same cluster for FDI, where economic indicators got the highest weight, PI gets a good balance between economic and demographic influence.

From those demographic variables, **Age_depen_ratio_transformed**, with 11.4%, is the one with the highest importance (with negative coefficient). For example, the fact that the variable Age dependency ratio turns out negative in the developed cluster could mean that the greater the influence on this variable, the slimmer the chances for investment those countries have; this first finding could set an important paradigm, given the fact that the working-age population will have to compensate for the non-working-age population (people under 15 and over 65), which ultimately translates into less investment. On the other hand, more investment would flock towards countries that depend less on their children and elderly.

Overall, economics were still the outstanding indicators explaining 51% of PI, but this cluster showed a substantial balance between demographic and economic forces.

IV.2.3 *Advanced Emerging Countries*

Up next, we can see an analysis of the second of four clusters according to the FTSE classification. The graphs and table for Advanced Emerging show the following:

Figure 18. PI. Advanced Emerging cluster Portfolio Investment
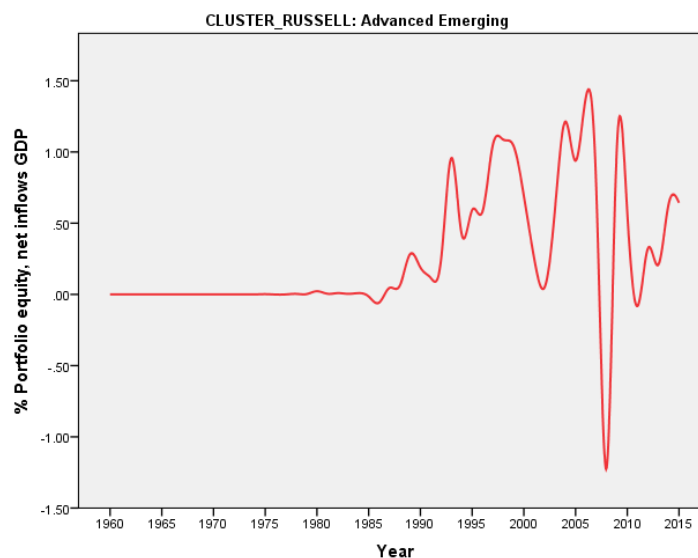
In this cluster, similarly to the previous PI graph, we can see how investment declined significantly during the crisis and has enjoyed a similar recovery, but this cluster shows a much lower investment and variability than the former one and its peer from FDI.

Afterwards, we can see the demographic and economic graphs analyzed in relation with PI for this cluster.

Figure 19. PI. Advance Emerging cluster: Importance and coefficients of variables

Predictor Importance

Target: ln_portfolio_gdp

Coefficients

Target: ln_portfolio_gdp
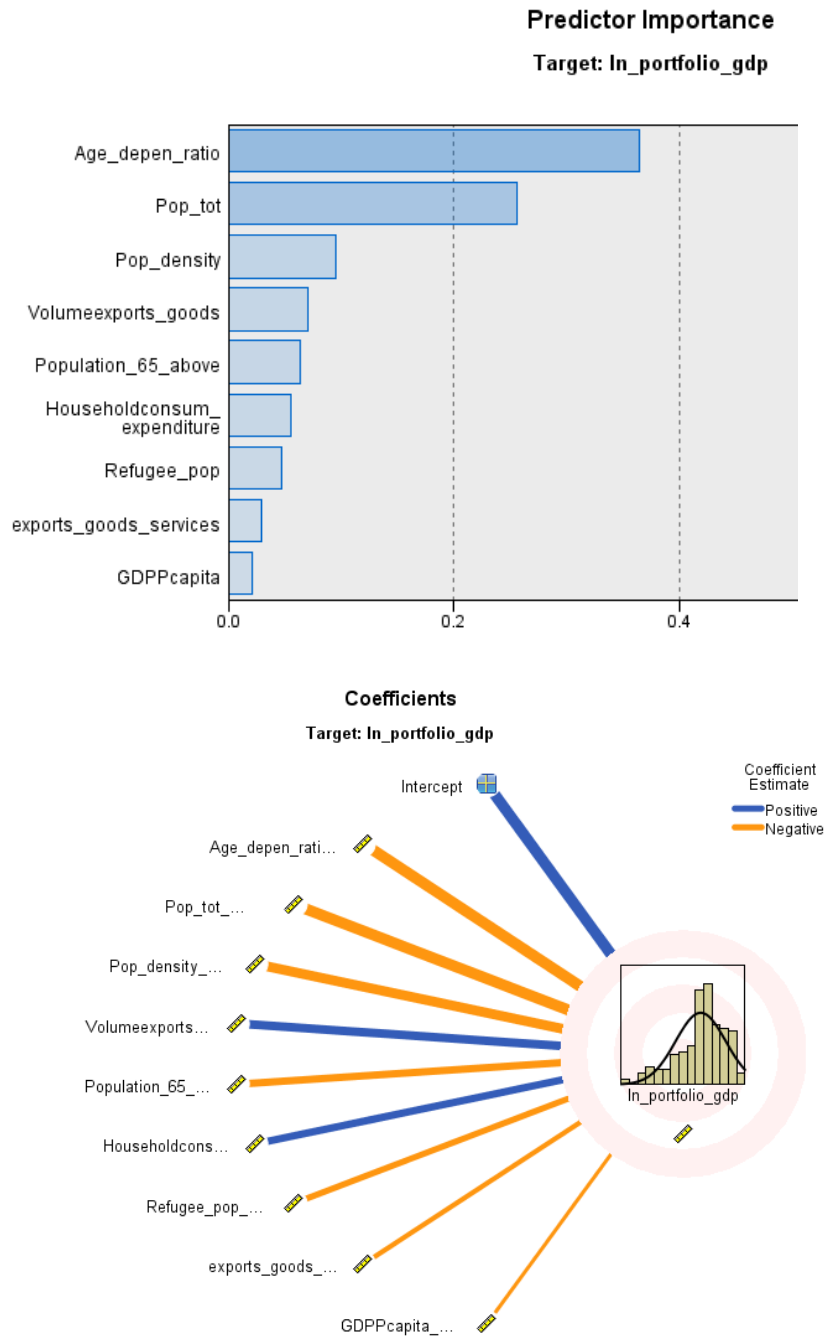
Table 17. PI. Advanced Emerging cluster variable data

Coefficients

Target: ln_portfolio_gdp

Model Term	Coefficient ▼	Std.Error	t	Sig.	95% Confidence Interval		Importance
					Lower	Upper	
Intercept	9.798	1.421	6.893	.000	6.993	12.604	
Age_depen_ratio_transformed	-0.118	0.015	-7.822	.000	-0.148	-0.088	0.365
Pop_tot_transformed	-0.000	0.000	-6.542	.000	-0.000	-0.000	0.255
Pop_density_transformed	-0.023	0.006	-3.981	.000	-0.034	-0.011	0.095
Volumeexports_goods_transformed	0.099	0.029	3.430	.001	0.042	0.156	0.070
Population_65_above_transformed	-0.205	0.063	-3.241	.001	-0.330	-0.080	0.063
Householdconsum_expenditure_transformed	0.000	0.000	3.056	.003	0.000	0.001	0.056
Refugee_pop_transformed	-0.000	0.000	-2.791	.006	-0.000	-0.000	0.046
exports_goods_services_transformed	-0.065	0.029	-2.216	.028	-0.122	-0.007	0.029
GDPPcapita_transformed	-0.000	0.000	-1.844	.067	-0.000	0.000	0.020

In this case, there was an R^2=0.363, which means that 36.3% of the portfolio investment variation within this cluster can be explained by the resulting 9 statistically significant variables. This cluster shows 5 significant demographic variables against 4 economic variables.

Of the economic variables, **Volumeexports_goods_transformed** yielded the largest contribution, with 7% (positive).

From the demographic variables, **Age_depen_ratio_transformed**, with 36.5%, had the highest importance with a negative coefficient. The contribution from this top demographic variable is very interesting, but not only that, it is crucial to emphasize that

there are 3 demographic indicators leading the cluster, all of them with a negative effect, contributing with 72% in total. Overall, demographics were the outstanding indicators explaining 82% of PI in this cluster.

IV.2.4 *Secondary Emerging Countries*

Next up, an analysis of the third of four clusters according to the FTSE classification. The graphs and table for Secondary Emerging countries show the following:

Figure 20. PI. Secondary Emerging cluster Portfolio Investment
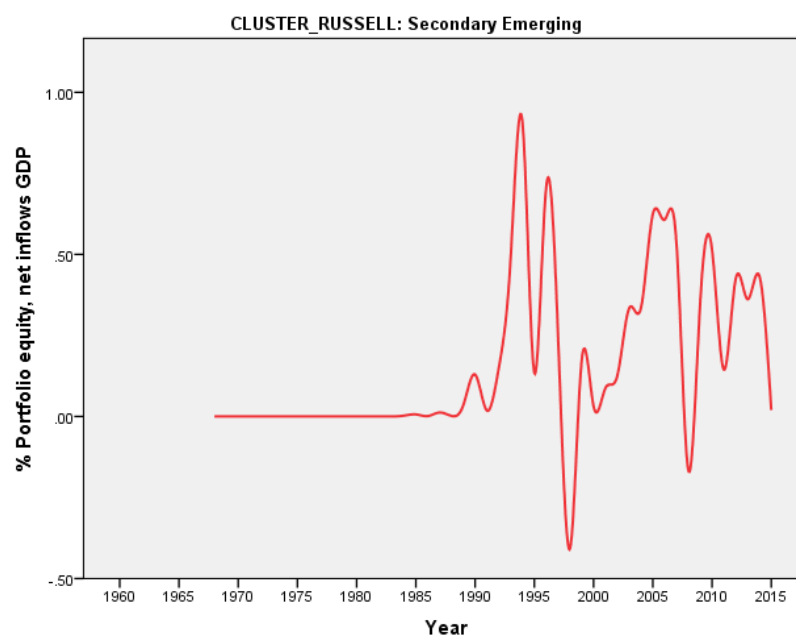
For this cluster, it is necessary to point out that PI behavior during the crisis was similar to that of the other clusters. However, this cluster shows a more erratic general performance since 1990 as well as a significant decrease in investment towards 2015, being the one with the most important drop for the time being. Additionally, it shows a lower investment rate than the same cluster for FDI.

Up next, we can see the demographic and economic graphs analyzed in relation to PI for this cluster.

Figure 21. PI. Secondary Emerging cluster: importance and coefficients of variables
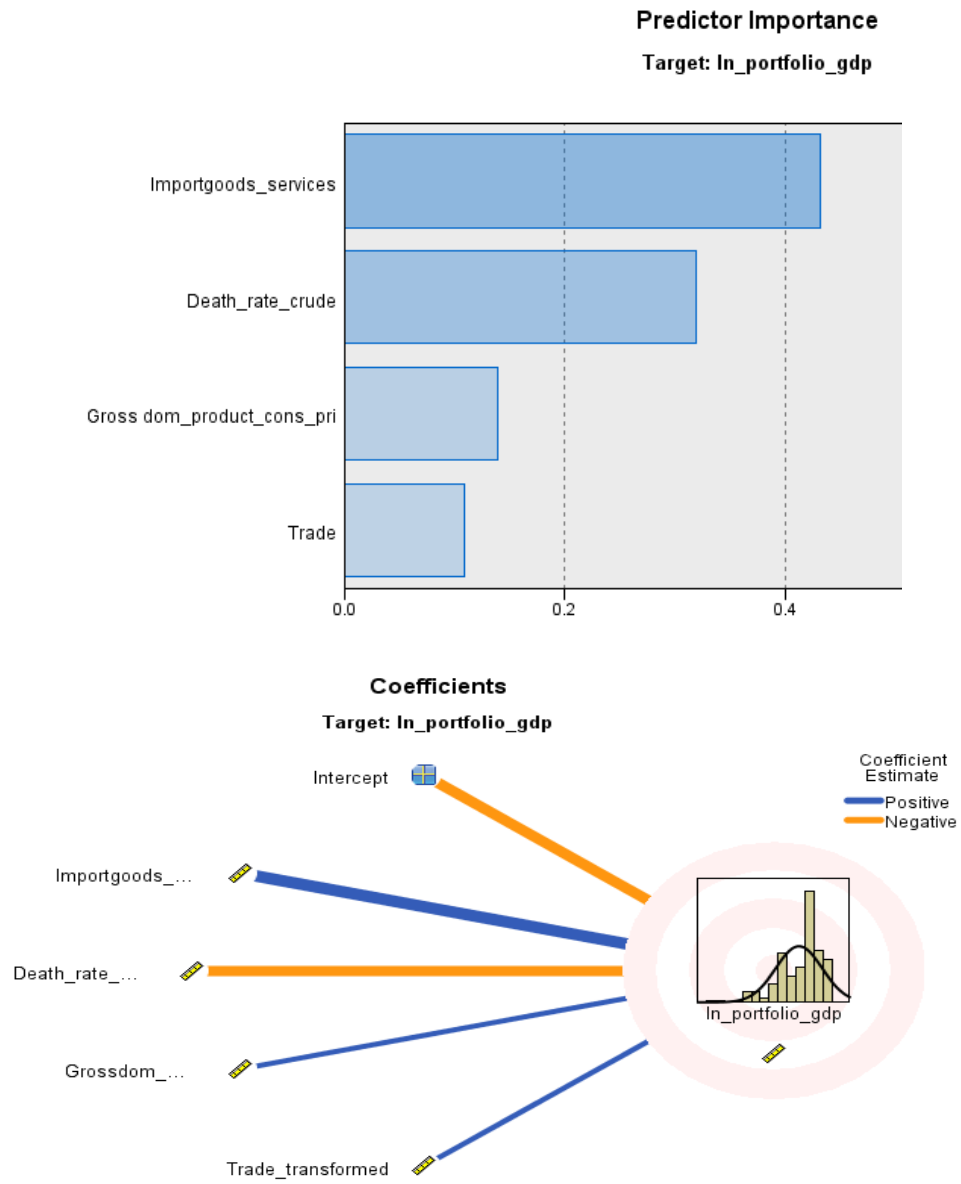
Table 18. PI. Secondary Emerging cluster variable data

Coefficients

Target: ln_portfolio_gdp

Model Term	Coefficient ▶	Sig.	Importance
Intercept	-1.841	.000	
Importgoods_services_transformed	0.000	.000	0.432
Death_rate_crude_transformed	-0.165	.000	0.320
Grossdom_product_cons_pri_ transformed	0.085	.010	0.139
Trade_transformed	0.013	.023	0.109

In this case, an $R^2=0.219$ was found. This cluster shows 1 demographic and 3 economic significant variables. Of the economic variables,

Importgoods_services_transformed stands out with the largest contribution, of 43.2%, and a positive coefficient.

The demographic variable **Death_rate_crude_transformed** presents a negative coefficient and a value of 32%.

In this case, the outcome led us to think that countries with higher imports attract PI, while countries with a higher death rate repeal PI. However, only a few significant variables were found and, since this cluster and the previous ones carry very low investments, the results are not meaningful enough. Overall, economics were still the outstanding indicators explaining 68% of PI.

IV.2.5 *Frontier Countries*

Finally, an analysis of the fourth cluster according to the FTSE classification. The graphs and table for Frontier countries shows the following:

Figure 22. PI. Frontier cluster Portfolio Investment
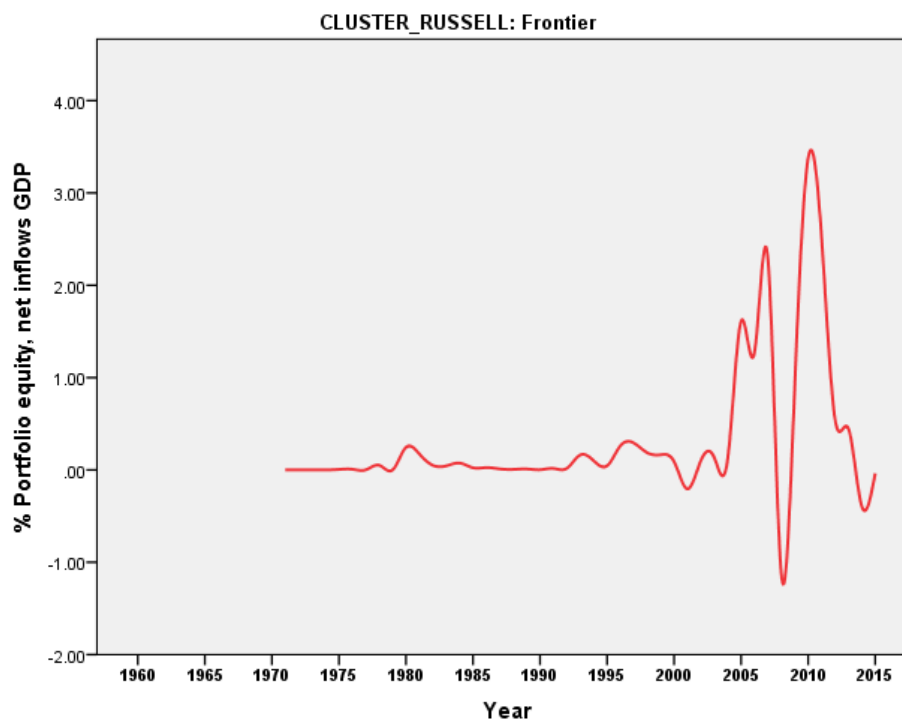
Here we can clearly appreciate the impact from the 08-09 crisis; just like in the others, there is also a very strong decline resulting from the crisis, but in general terms this cluster is more similar to the developed one, including a higher investment level, while both emerging clusters showed a different trend.

Afterwards, we can see the demographic and economic graphs analyzed in relation with PI for this cluster.

**Figure 23. PI. Frontier cluster: Importance and coefficients of variables**
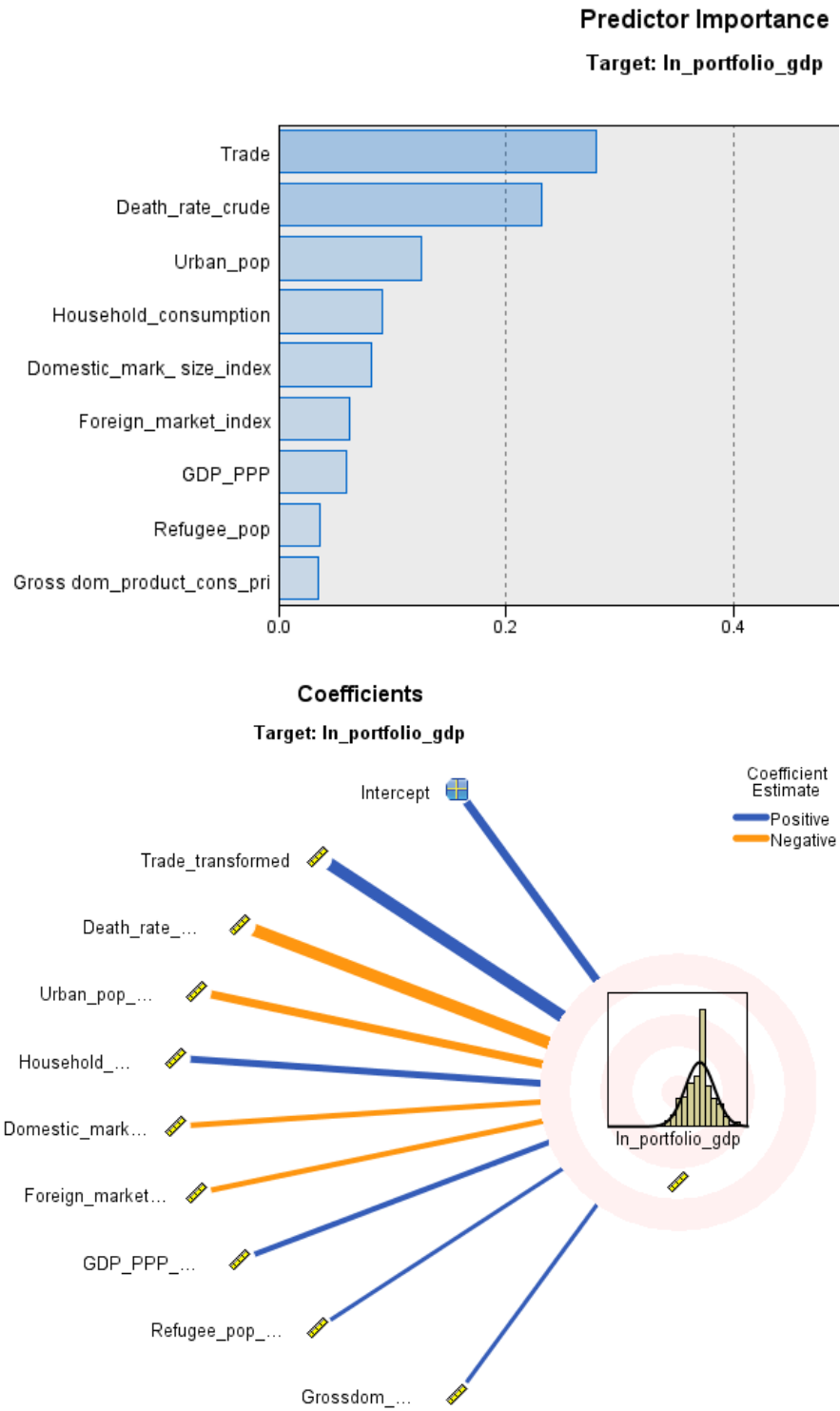
Table 19. PI. Frontier cluster variable data

Coefficients

Target: ln_portfolio_gdp

Model Term	Coefficient ▶	Sig.	Importance
Intercept	3.227	.003	
Trade_transformed	0.016	.000	0.279
Death_rate_crude_transformed	-0.118	.000	0.231
Urban_pop_transformed	-0.000	.002	0.125
Household_consumption_ transformed	0.000	.007	0.090
Domestic_mark_size_index_ transformed	-0.957	.011	0.081
Foreign_market_index_ transformed	-0.761	.025	0.062
GDP_PPP_transformed	0.000	.030	0.059
Refugee_pop_transformed	0.000	.087	0.036
Grossdom_product_cons_pri_ transformed	0.049	.093	0.035

In this cluster, an R^2=0.263 was found, 6 economic and 3 demographic variables stand out. As far as the economic factors go, **Trade_transformed** rises again as the leader of all variables with a value of 27.9% significance.

Of the demographic variables, **Death_rate_crude_transformed** shows the highest importance value with a 23.1% contribution and a negative coefficient, replicating the same trend that we observed in the previous cluster.

This cluster basically confirms the trend of the general results, leveraging the number of economic indicators explaining 61% of PI, but showing certain balance too.

IV.2.6 *Final Comments on PI Analysis*

The last graph that I will present shows the general differences in PI behavior in the 4 clusters. In this graph, we can see a clearer discrepancy between the level of investment in developed countries versus the rest, while emerging clusters show a similar behavior. On the other hand, in current times, the graph contrasts the behavior of the three first groups versus the last one, where, being aware of the investment level differences, we can see a positive trend, while the rest of the clusters are falling down once again.

Figure 24. PI for the 4 clusters
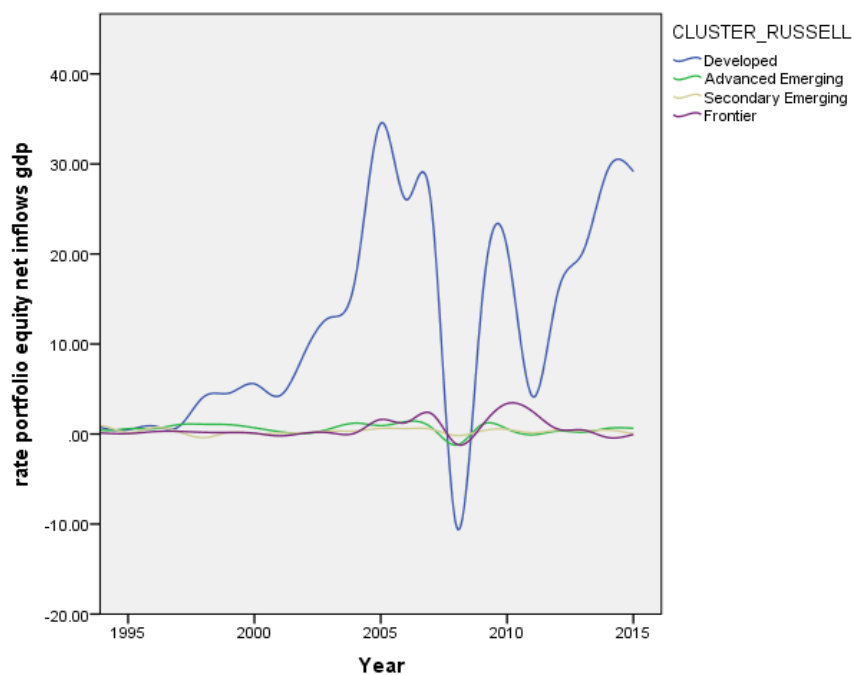
Regarding the economic and demographic contribution to explain PI, there was a clear trend from economic power to a certain balance between both forces, from the developed cluster to emerging countries, with the exception of the Advanced Emerging cluster, were demographics were stronger.

Concerning specific variables, **trade** and **import and exports** as separate variables showed an outstanding contribution appearing as the most relevant economic factors in 4 out of the 4 clusters and with a very high percentage of importance: **age dependency** and **death rate** from the demographic branch.

IV.3 Final Remarks about FDI & PI Findings and Relationships

In summary, I can certainly state that the general behaviors of FDI and PI over time shows similar trends. We can see that the 2008 financial crisis affected both kinds of investment, in the long term and the short term, in spite of the particular characteristics of each cluster. However, the mix of significant indicators that we found for FDI and PI were different, and the same happened when analyzing the general dynamic of the clusters.

In order to point out some of the main findings of this research, I will organize the results into A) general remarks, B) economic remarks and C) demographic remarks.

A) One of the most important findings was that R^2 went down from Developed to Frontier, with FDI as a dependent variable (DV1), and it followed a very similar trend when PI, the second dependent variable (DV2), was addressed; for PI, only the Frontier cluster broke the pattern giving more R^2 than Secondary Emerging. On the other hand, while we obtained a steady R^2 for FDI, there was wider variation for PI. The following table summarizes the observed R^2 change.

Table 20. R^2 by cluster

	R^2	
	PI	**FDI**
General	0.255	0.387
Developed Countries	0.456	0.567
Advanced Emerging Countries	0.363	0.557
Secondary Emerging Countries	0.219	0.554
Frontier Countries	0.263	0.429

a. This outcome proves that FDI is better explained by the selected variables of this study than PI is. More developed clusters are better explained than underdeveloped clusters in general terms too.

b. Having said that, decision makers who would like to invest, based on this study, might want to consider the addressed variables when making long-term investments (FDI), especially if they are looking for options among developed countries. However, investors who are interested in less developed countries in general, might want to review the results of this study as well and make a more in-depth study within their clusters of interest.

B) From the economic indicators, trade was an outstanding variable for FDI and PI, with a steady positive contribution to explain foreign investment and permanently present in the developed and frontiers clusters. Based on this outcome, it is clear that "exports and imports" are the leading variables to explain foreign investment

in this study, not only from an economic standpoint, but considering all the other variables too.

C) From the demographic indicators:

    a. "Age dependency" was a constant and one of the most important negative factors for PI especially in developed and advanced emerging countries, which makes sense because decision makers may consider age dependency, especially among the elderly, which is a very important component of this indicator.

    b. On the other hand, "population density" was a very important negative indicator to explain FDI; the analysis could imply that the bigger the influence of this variable, the lower the chances for investment there will be for the affected countries; this first finding could set an important paradigm among the rest of the demographic indicators, given the fact that growing populations in smaller territories are not attracting FDI.

    c. Based on these results, we can state that negative demographic factors (like age dependency) are usually those that can help to better explain foreign investment, whereas positive demographic indicators represent a lower contribution.

In conclusion, after having found an important number of significant demographic variables, linear relationships with investment, and consistency in the presence of these variables in both the general analysis and almost all clusters, it can be said that demographics do enhance our ability to explain and predict foreign investment attractiveness. However, this in no way means that demographic variables are the major

determinants to explain investment, because as it could be seen in most of the clusters, economic variables carried more value than demographic ones when explaining investments, although demographics led the way in some of the clusters.

Altogether, the most important demographic factors to consider when investing in industrialized, emerging, and/or frontier countries have already been listed. Finally, since the study found links as well as differences between FDI and PI determinants, being these indicators our DV1 & DV2, we can state that demographics do matter when explaining and predicting short and long-term investments.

In the discussion section, different tables and graphs will be presented to elaborate and expand on the main findings of this study and their relationship with theory and practice.

V   CHAPTER V: DISCUSSION AND IMPLICATIONS

If we go back to the introduction of this research, we can recall that, among many changes that are reshaping the world, the most striking one, from my personal point of view, is the demographic explosion that we are experiencing and the adjacent impacts that different fields are facing or will face in regard to this macrotrend.

We just need to see one of the probabilistic projections from the United Nations that I will present below to realize that this factor, with no precedent in history, will impact our lifestyle, economic trends, natural resources, and investment behavior, among many other changes.

Figure 25. World total population
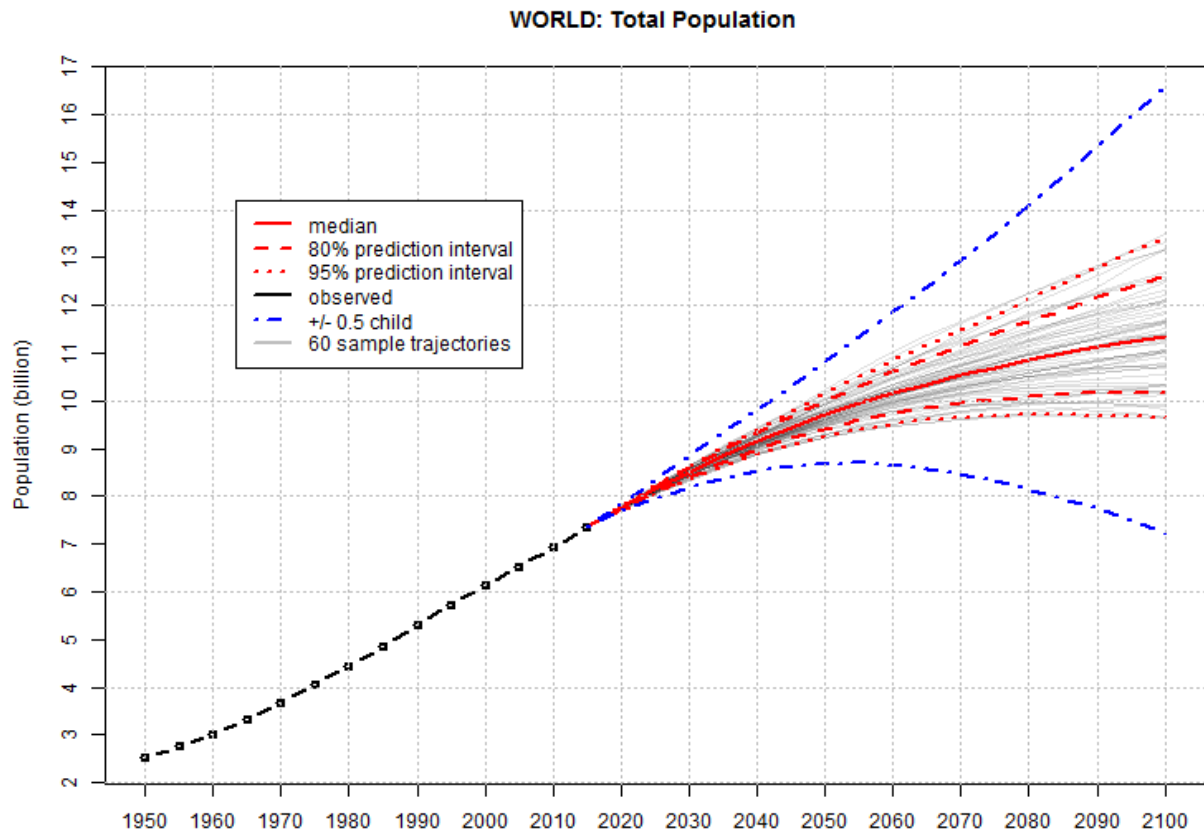
Source: United Nations, Department of Economic and Social Affairs, Population Division (2015). World Population Prospects: The 2015 Revision. http://esa.un.org/unpd/wpp/

As we can see, global population has grown from 2.5 billion people in 1950 to more than 7 billion in current times, and it will reach around 11 billion people at the end of the century if the probabilistic projection of the median reaches its objective.

Due to my academic and professional interest, I wanted to understand the effects of this macrotrend, but being conscious of the wide number of areas that can be studied regarding this topic, I chose the most relevant one for me to delve deeper: the relationship between demographics and investment; especially the linkage that is useful for decision makers.

Then I did a literature review looking for systematic studies that addressed the relationship between demographics and investment. I found some indicators such as labor market dynamics, demographic bonuses, and aging populations in the context of specific countries like China or India, that will clearly affect worldwide business environments in the coming decades; nevertheless, since I found these demographic factors in unattached studies, but not as a systematic review, the findings encouraged me to continue the research in order to contribute with a systematic study, diving into a set of variables in different clusters of countries that investors can identify as significant in their correlation with short and long-term foreign investment trends. In this way, this study could become the starting point when demographics are variables to be considered by investors. Moreover, academics might make good use of them too if they should wish to continue with further research.

V.1   Contribution to Knowledge and Practice

Having said that, it is important to remember that this research intends to enhance the traditional investment toolkit, not to replace it, and that is why the literature review

addressed the elements that I consider any decision maker should analyze before investing abroad. In addition to that, one of the basic premises of this study is that investors usually consider the performance of a very specific sector, industry, and product as key variables when making investment decisions. Thus, this toolkit of economic and demographic variables enhances the information that any company has previously analyzed regarding its own business and direct market. Based on the literature review, the next chart shows where the demographic contributions take place as part of a broader investment framework.

Figure 26. Demographic contribution as part of an investment framework
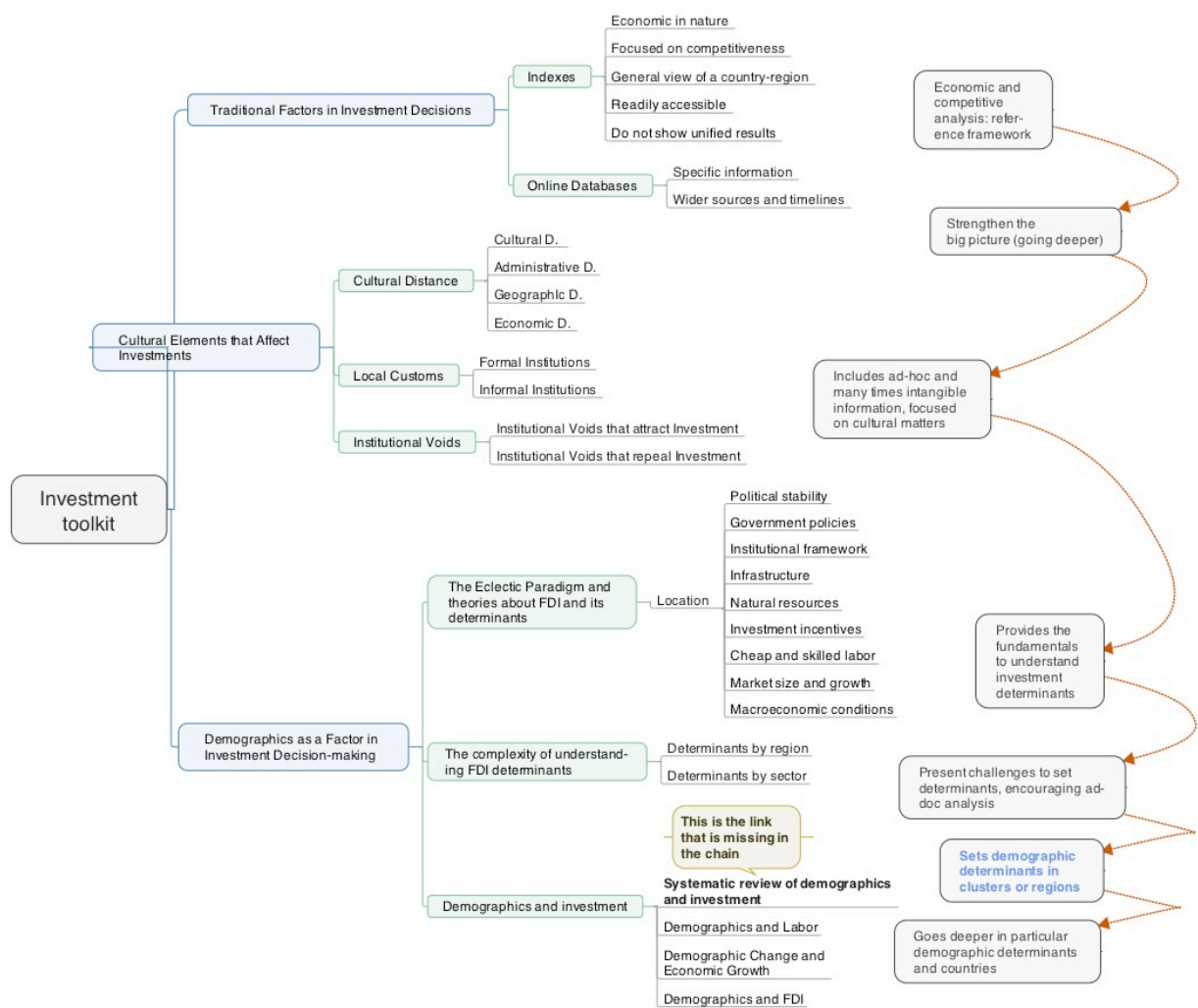
As can be seen, the toolkit that demographics is aiming to enhance contemplates the former economic and competitive analysis, followed by the consideration of cultural and ad-hoc elements that strengthen the general view of a group of potential countries for investment. Then, under the consideration of a specific theory that presents investment determinants, that confirms or improves the previously included indicators, it enhances the set of determinants with demographic indicators, pointing out the lack of a systematic research of demographic factors that frames the specific analysis of demographic indicators in clusters or regions. The results of this research contribute to this section showing significant economic and demographic variables with linear correlation to FDI and PI as follows:

Table 21. Variable importance by cluster

FDI					
Type of variable	n.	Variable	Importance (as %)	Total importance (as %)	R2
General					
Economic	5	Trade_transformed	51.6%	67.5%	0.387
		Household_consumption_transformed	5.8%		
		Grossdom_product_cons_pri_transformed	5.1%		
		Foreign_market_index_transformed	3.0%		
		Householdconsum_expenditure_transform	2.0%		
Demographic	5	Pop_density_transformed	8.9%	23.3%	
		Death_rate_crude_transformed	4.5%		
		Fertility_rate_transformed	3.8%		
		Life_expectancy_transformed	3.6%		
		Birth_rate_crude_transformed	2.5%		
Developed Countries					
Economic	8	Trade_transformed	45.9%	83.2%	0.567
		Household_consumption_transformed	13.3%		
		Exports_goods_servs_transformed	8.2%		
		Householdconsum_expenditure_transform	4.9%		
		GDPPcapita_transformed	3.7%		
		Volume_Import_goods_transformed	2.6%		
		GDP_PPP_transformed	2.4%		
		Foreign_market_index_transformed	2.2%		
Demographic	2	Pop_density_transformed	8.7%	11.9%	
		Pop_tot_transformed	3.2%		
Advanced Emerging Countries					
Economic	6	Trade_transformed	22%	56.0%	0.557
		Householdconsum_expenditure_transform	11.3%		
		GDP_PPP_transformed	6.7%		
		Foreign_market_index_transformed	5.7%		
		Volume_Import_goods_transformed	5.3%		
		Exports_goods_servs_transformed	4.9%		
Demographic	4	Urban_pop_transformed	11.5%	29.6%	
		Death_rate_crude_transformed	6.4%		
		Pop_tot_transformed	6.3%		
		Life_expectancy_transformed	5.4%		
Secondary Emerging Countries					
Economic	5	Grossdom_product_cons_pri_transformed	20.1%	43%	0.554
		Exports_goods_servs_transformed	7.7%		
		Trade_transformed	6.9%		
		importgoods_services_transformed	4.6%		
		Householdconsum_expenditure_transform	3.6%		
Demographic	5	Life_expectancy_transformed	19.2%	46%	
		Pop_tot_transformed	9.4%		
		Urban_pop_transformed	7.9%		
		Refugee_pop_transformed	5.8%		
		Fertility_rate_transformed	3.9%		
Frontier Countries					
Economic	4	Trade_transformed	52.7%	76.4%	0.429
		Household_consumption_transformed	11.3%		
		Foreign_market_index_transformed	9.6%		
		Grossdom_product_cons_pri_transformed	2.8%		
Demographic	6	Pop_density_transformed	8.8%	21.0%	
		Death_rate_crude_transformed	5.3%		
		Fertility_rate_transformed	2.8%		
		Age_depen_ratio_transformed	1.4%		
		Pop_growth_transformed	1.4%		
		Birth_rate_crude_transformed	1.3%		

Portfolio Investment					
Type of variable	n.	Variable	Importance (as %)	Total importance (as %)	R2
General					
Economic	6	Trade_transformed	45.2%	63.4%	0.255
		Grossdom_product_cons_pri_transforme	8.9%		
		Unemployment_transformed	3.0%		
		Householdconsum_expenditure_transfo	2.2%		
		Foreign_market_index_transformed	2.1%		
		GDPPcapita_transformed	2.0%		
Demographic	4	Urban_pop_transformed	17.9%	33.4%	
		Death_rate_crude_transformed	9.4%		
		Age_depen_ratio_transformed	3.3%		
		Pop_growth_transformed	2.8%		
Developed Countries					
Economic	4	Trade_transformed	34.6%	51.4%	0.456
		Householdconsum_expenditure_transfo	7.6%		
		Exports_goods_servs_transformed	5.9%		
		Unemployment_transformed	3.3%		
Demographic	6	Age_depen_ratio_transformed	11.4%	42.8%	
		Life_expectancy_transformed	10.7%		
		Fertility_rate_transformed	9.4%		
		Urban_pop_transformed	4.7%		
		Population_65_above_transformed	3.4%		
		Pop_tot_transformed	3.2%		
Advanced Emerging Countries					
Economic	4	Volumeexports_goods_transformed	7%	17.5%	0.363
		Householdconsum_expenditure_transfo	5.6%		
		Exports_goods_services_transformed	2.9%		
		GDPPcapita_transformed	2.0%		
Demographic	5	Age_depen_ratio_transformed	36.5%	82.4%	
		Pop_tot_transformed	25.5%		
		Pop_density_transformed	9.5%		
		Population_65_above_transformed	6.3%		
		Refugee_pop_transformed	4.6%		
Secondary Emerging Countries					
Economic	3	Importgoods_services_transformed	43.2%	68%	0.219
		Grossdom_product_cons_pri_transforme	13.9%		
		Trade_transformed	10.9%		
Demographic	1	Death_rate_crude_transformed	32%	32%	
Frontier Countries					
Economic	6	Trade_transformed	27.9%	60.6%	0.263
		Household_consumption_transformed	9%		
		Domestic_mark_size_index_trnsformed	8.1%		
		Foreign_market_index_transformed	6.2%		
		GDP_PPP_transformed	5.9%		
		Grossdom_product_cons_pri_transforme	3.5%		
Demographic	3	Death_rate_crude_transformed	23.1%	39.2%	
		Urban_pop_transformed	12.5%		
		Refugee_pop_transformed	3.6%		

Based on both tables, here are some of the main findings to discuss:

A) Including negative and positive coefficients, the sum of economic variables led the way with the highest percent contribution in the general selection of all countries. The results yielded a 67.5% for FDI and a 63.4 %for PI.

B) When analyzing clusters, economic variables led in 3 out of 4 clusters, both in FDI and PI, confirming their superiority to explain foreign investment over demographics.

C) The absolute number of significant economic and demographic variables across all clusters showed balance in most of them. 23 economic variables were found in FDI in contrast to 17 demographic ones; in PI, 17 economic against15 demographic variables were found. Many of them are in more than one cluster, but the mentioned numbers represent the sum of the total variables playing a role.

D) Economic variables showed an outstanding performance in Developed and Frontier clusters for FDI, and in Secondary Emerging and Frontier for PI.

E) Demographic variables had a good performance in Secondary Emerging for FDI and remarkable numbers in advanced emerging for PI.

In order to analyze the top variables and their type of contribution, the next table is included:

Table 22. Most important variables by cluster

Type of Variable	Variable nº 1	FDI		PI
General				
Economic	Trade_transformed	51.6%	Trade_transformed	45.2%
Demographic	Pop_density_transformed	8.9%	Urban_pop_transformed	17.9%
Developed Countries				
Economic	Trade_transformed	45.9%	Trade_transformed	34.6%
Demographic	Pop_density_transformed	8.7%	Age_depen_ratio_transformed	11.4%
Advanced Emerging Countries				
Economic	Trade_transformed	22%	Volumeexports_goods_transformed	7%
Demographic	Urban_pop_transformed	11.5%	Age_depen_ratio_transformed	36.5%
Secondary Emerging Countries				
Economic	Grossdom_product_cons_pri_transformed	20.1%	Importgoods_services_transformed	43.2%
Demographic	Life_expectancy_transformed	19.2%	Death_rate_crude_transformed	32%
Frontier Countries				
Economic	Trade_transformed	52.7%	Trade_transformed	27.9%
Demographic	Pop_density_transformed	8.8%	Death_rate_crude_transformed	23.1%

As a general finding, the table showed how all the top economic variables demonstrated a positive contribution (black), while most of the demographic ones presented a negative contribution (red). Both help explain foreign investment, but being aware of these differences is important when making investment decisions. Particular findings regarding the top variables are presented as follows:

F) Trade was a very significant variable for FDI and PI. Meaning that the sum of the export and import of goods and services measured as a share of gross domestic product is the most important economic indicator to attract and understand foreign investment from this set of variables.

  a. There were other top economic variables, but in general, those strengthen trade, as is the case of volume of exports and imports for goods and services that were found too.

G) Age dependency constantly appeared as a negative factor for PI, and population density for FDI. Those were the most representative demographic variables.

  a. Other demographic variables were found, i.e., urban population and life expectancy contributing positively, especially in emerging countries in FDI.

Elaborating on the results and presenting the main findings graphically, these main results can be seen as follows:

Figure 27. Main outcomes

◔ Positive Eco. ⊕ Positive Demo. ◯ Negative Eco. ◌ Negative Demo		Development level	
		Dev. & Ad. Emerging	**Second. Emerg. & Front.**
Investment level	**FDI** ↕	Trade Trade Urb. Pop. / Pop. Dens.	Life exp. GDP Trade / Pop. Dens.
	PI ↕	Trade Vol. Exp. / Age dep. Age dep.	Imp. Trade / Death rate Death rate
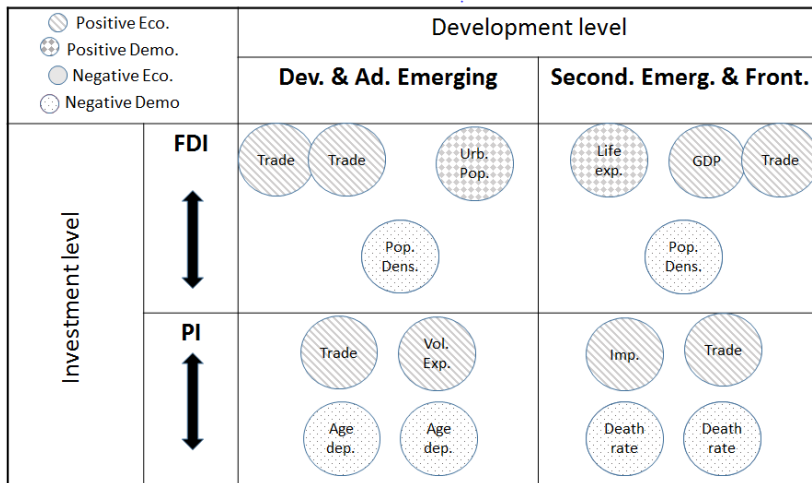
- Urb. Pop. = Urban population
- Pop. Dens. =Population density
- Vol. Exp. = Volume of exports of goods and services
- Age. Dep. =Age dependency
- Life. Exp. = Life expectancy
- GDP = Gross Domestic Product
- Imp. = Imports of goods and services

In this graph, we can observe how positive contribution helps to explain foreign investment in the model via lineal correlation, whereas negative coefficients do the same in an opposite direction, both for FDI (long term) and PI (short term) in the four analyzed clusters. Each quadrant presents a different composition of variables. However, there are indicators that appear in more than one quadrant such as "trade", or that appear more than once in the same quadrant; this happens with "trade", but with "age dependency" and "death rate" too.

It is important to say that a graphic way of showing the influence of the main indicators in the quadrants allows for the visual understanding of the general outcome, but encourages to review the findings section when analyzing any of the clusters in detail. For instance, the shape of independent variables in PI is very interesting because we can observe how both negative demographic variables replicate their presence within the quadrants, or how economic indicators are always positive in any quadrant, while positive demographic indicators only appear in FDI quadrants.

In this regard, the number of assumptions that may come from these findings are very interesting in several ways. For instance, in developed and advanced emerging

countries, we could link the negative impact of "age dependency" to investment repelling in countries where the number of elder o very young and no active population represent a significant part of the population, while on the opposite side of the analysis, countries with higher economically active population could attract investment. In the same cluster, the positive impact of "urban population" may indicate that investment looks into urban areas to find opportunities, but not necessarily very saturated ones, because "population density" showed negative impact in the same cluster.

In the secondary emerging and frontier clusters, we could assume that "death rate" plays a very important negative role in underdeveloped countries repealing investment, while "life expectancy" has a positive contribution in the same cluster because this indicator is usually related to good health. The opposition between the variables "death rate" and "life expectancy" help explain the level of development and in this case, investment attractiveness.

V.2   What the Future May Hold

As we could observe, another important finding is that there is a very important number of significant demographic variables to follow: 11 out of 19 variables proved their linear correlation with foreign investment; 9 when analyzing FDI and 10 analyzing PI, considering all clusters.

Today, economic variables dominate foreign investment, but due to the demographic explosion and the resulting new patterns, the number of demographic significant variables could become essential to explain investment or even to reshape the current clusters. As we remember, the FTSE classification categorizes countries based on their economic and financial development, so today Spain can be part of the Developed

Cluster, but because of demographic patterns like "age dependency", it could move to another cluster in the future and we could see a general reorganization of the clusters. Similar shifts could make the less developed cluster countries move upwards.

Demographic variables like "age dependency," "population density," and "death rate," which always played a negative role within this study, could grow in importance throughout time and become very important determinants of foreign investment and development in general. Nowadays, there are some demographic trends that strengthen the economic position of a country or a cluster, such as in the case of China, which, as of today, holds a wide economically active population, but in the future said indicator could be replaced by "age dependency" and, consequently, modify the performance of the country.

With the new knowledge base provided by this research, other studies that address particular countries or challenges could complement their research. For instance, over the literature review, some works such as "India's Demographics: Favorable Today, Costly Tomorrow" (Semil Shah, 2009) or "Demographic change and economic growth: Theory and evidence from China" (Shenglong Liu and Angang Hu, 2013) could link their findings and hypotheses to this study. As we can recall, those studies tackle how India is taking steps to improve its healthcare systems, knowing that it will have to provide for many more elderly people in the future, or how China will soon face an aging population. Decreases in the birth rate and increases in the working population have led to economic growth over the past 30 years. Both studies will be completely related with our age dependency ratio indicator, for instance.

This study could even be the first step to a sectorial analysis within countries where and when demographic variables become investment determinants. I consider that one of the most important results from this study, beyond the particular findings, has been the discovery of a very rich area to be explored, where the relationship between demographics and investments converge into a great opportunity for further research and business benefits.

So, as has been shown, this study made a systematic revision of 68 countries grouped in 4 clusters that has provided significant demographic variables to contribute in explaining and predicting investment. This set of variables, that change depending on the cluster, set a base point of analysis that can be linked, completed, enhanced or improved with particular cases, but points out its contribution to knowledge as a systematic review of possible demographic determinants to investment, giving a new perspective to enhance investment decision making. Emphasizing the cluster analysis, showing that even though economic factors could point to investment in a certain country or cluster, the most important demographic factors could increase the attractiveness of another country or cluster, showing a better outlook considering both short and long-term scenarios.

V.3   Limitations of this Study

Since this is a cluster-level analysis, the outcomes of this study won´t reach any countries in particular or the industry level, and it won't go into deeper levels of analysis. The significance of the correlations present very important results among clusters. My current study does provide a set of demographic variables that have proven their significance when analyzing the linear correlation with foreign investment that can set up

a host of future research, but country and industry analyses are areas of opportunity to

continue this inquiry.

VI   CHAPTER 6: CONCLUSIONS

Throughout the study, we have analyzed indexes such as the WEF and the RCII to get a reference point on how economic and demographic indicators have been explored. Then we delved deeper into the existing literature on cultural issues, including cultural distance, local customs, and institutional voids, all of which influence a country's business environment and the investor's role therein. And we have even analyzed investment determinants that can be related to demographics in order to give investors a holistic review of traditional and non-traditional elements that are usually considered to make foreign investment decisions.

We have seen that laying economic and cultural factors together offers a wider perspective for investors; nevertheless, based on the literature review, demographics are still missing and the premise of this work is precisely the inclusion of demographics, which may become an essential part of investment decisions.

In spite of the demographic explosion and the related new patterns impacting different clusters of countries and different fields of study, the lack of inclusion or relevance of demographics in business as part of academic research open a big window of opportunity to gain a better understanding of the correlation between foreign investment and demographics.

A review of the literature demonstrates that factors such as aging population and other demographic indicators can have a significant impact on specific countries in the medium and long terms, but there is no systematic analysis for a wide group of countries or clusters that can give a broader-spectrum picture to business people.

Since there are no studies that address the statement that demographics enhance our ability to explain and predict foreign investment attractiveness in industrialized,

emerging, and frontier countries in the long and in the short run; I consider this analysis to be a big contributor to the statistical evidence about the addressed relationships, improving the traditional investment toolkit.

The study presented the interaction between 21 independent variables and 2 dependent variables: FDI (DV1) to analyze the long term and PI (DV2) to analyze the short term. From this analysis, interesting results were found. For instance, that R^2 went down from Developed to Frontier with FDI as a dependent variable (DV1) and followed a very similar trend when PI, the second dependent variable (DV2), was addressed; that FDI is better explained by the selected variables of this study than PI is, and more developed clusters are better explained than underdeveloped clusters in general terms too.

From the economic indicators, "Trade" was an outstanding variable for FDI and PI, with a steady positive contribution to explain foreign investment and permanently present in the Developed and Frontiers clusters. Economics constantly presented a positive contribution.

Meanwhile "Age dependency" was a constant and one of the most important negative factors for PI, especially in Developed and Advanced Emerging countries. In general terms, we can state that negative demographic factors are usually those that can help to better explain foreign investment, whereas positive demographic indicators represent a lower contribution.

Across the discussion section, different tables and graphs were presented to elaborate and expand on the main findings of this study and their relationship with theory and practice; and a set of variables was also displayed in different clusters of countries

that investors can identify as significant in their correlation with short and long-term foreign investment trends.

In conclusion, after having found an important number of significant demographic variables, linear relationships with investment, and consistency in the presence of these variables in both the general analysis and almost all clusters, it can be said that the alternative hypothesis that stated that demographics do enhance our ability to explain and predict foreign investment attractiveness is true. However, this does not mean that demographic variables are the major determinants to explain investment, because as it could be seen in most of the clusters, economic variables carried more value than demographic ones to explain investments.

Today, we can prove that there is a linear relationship between a very important set of demographic variables and foreign investment in the short and long term, but their importance to explain and predict investment is still recent in comparison to economic variables. In the future, these demographic indicators may become more important due to the shifting demographic reality that the world is experiencing; this study could represent the beginning of a tracking analysis and a systematic review of demographic indicators in their relationship with foreign investment over time.

APPENDICES

Appendix A Definition of Variables and SPSS Codification

Significant Independent variables	SPSS cod.	Source	Definition
ECONOMIC VARIABLES			
Exports of goods and services (constant 2010 US$)	Exports_goods_servs_transformed	The World Bank Data. World Development Indicators	Exports of goods and services represent the value of all goods and other market services provided to the rest of the world. They include the value of merchandise, freight, insurance, transport, travel, royalties, license fees, and other services, such as communication, construction, financial, information, business, personal, and government services. They exclude compensation of employees and investment income (formerly called factor services) and transfer payments. Data are in constant 2010 U.S. dollars.
GDP growth (annual %)	GDP_growth_transformed	The World Bank Data. World Development Indicators	Annual percentage growth rate of GDP at market prices based on constant local currency. Aggregates are based on constant 2010 U.S. dollars. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and

			degradation of natural resources.
GDP per capita (constant 2010 US$)	GDPPcapita_transformed	The World Bank Data. World Development Indicators	GDP per capita is gross domestic product divided by midyear population. Data are in constant 2010 U.S. dollars.
Gross domestic product, constant prices	Grossdom_product_cons_pri_transformed	International Monetary Fund WEO data	Constant-price gross domestic product (GDP) is inflation-adjusted GDP. Constant prices are obtained by directly factoring changes over time in the values of flows or stocks of goods and services into two components reflecting changes in the prices of the goods and services concerned and changes in their volumes.
Household final consumption expenditure (constant 2010 US$)	Household_consumption_transformed	The World Bank Data. World Development Indicators	Household final consumption expenditure (formerly private consumption) is the market value of all goods and services, including durable products (such as cars, washing machines, and home computers), purchased by households. It excludes purchases of dwellings but includes imputed rent for owner-occupied dwellings. It also includes payments and fees to governments to obtain permits and licenses. Here, household consumption expenditure includes the expenditures of

			nonprofit institutions serving households, even when reported separately by the country. Data are in constant 2010 U.S. dollars.
Household final consumption expenditure per capita (constant 2010 US$)	Householdconsum_expenditure_transformed	The World Bank Data. World Development Indicators	Household final consumption expenditure per capita (private consumption per capita) is calculated using private consumption in constant 2010 prices and World Bank population estimates. Household final consumption expenditure is the market value of all goods and services, including durable products (such as cars, washing machines, and home computers), purchased by households. It excludes purchases of dwellings but includes imputed rent for owner-occupied dwellings. It also includes payments and fees to governments to obtain permits and licenses. Here, household consumption expenditure includes the expenditures of nonprofit institutions serving households, even when reported separately by the country. Data are

			in constant 2010 U.S. dollars.
Imports of goods and services (constant 2010 US$)	Importgoods_services_transformed	The World Bank Data. World Development Indicators	Imports of goods and services represent the value of all goods and other market services received from the rest of the world. They include the value of merchandise, freight, insurance, transport, travel, royalties, license fees, and other services, such as communication, construction, financial, information, business, personal, and government services. They exclude compensation of employees and investment income (formerly called factor services) and transfer payments. Data are in constant 2010 U.S. dollars.
Trade (% of GDP)	Trade_transformed	The World Bank Data. World Development Indicators	Trade is the sum of exports and imports of goods and services measured as a share of gross domestic product.

Volume of exports of goods and services	exports_goods_services_ transformed	International Monetary Fund WEO data	Exports of goods and services represent the value of all goods and other market services provided to the rest of the world. They include the value of merchandise, freight, insurance, transport, travel, royalties, license fees, and other services, such as communication, construction, financial, information, business, personal, and government services. They exclude compensation of employees and investment income (formerly called factor services) and transfer payments.
Volume of Imports of goods	Volume_Import_goods_ transformed	International Monetary Fund WEO data	Imports of goods represent the value of all goods provided to the rest of the world. They exclude the value of merchandise, freight, insurance, transport, travel, royalties, license fees, and other services, such as communication, construction, financial, information, business, personal, government services and compensation of employees and investment income (formerly called factor services) and transfer payments.

Volume of imports of goods and services	Volume_imports_transformed	International Monetary Fund WEO data	Imports of goods and services represent the value of all goods and other market services received from the rest of the world. They include the value of merchandise, freight, insurance, transport, travel, royalties, license fees, and other services, such as communication, construction, financial, information, business, personal, and government services. They exclude compensation of employees and investment income (formerly called factor services) and transfer payments.
DEMOGRAPHIC VARIABLES			
Age_depen_ratio	Age_depen_ratio_transformed	The World Bank Data. World Development Indicators	The ratio of dependents—people younger than 15 and older than 65—to the working-age population—those aged 15–64.
Birth_rate_crude	Birth_rate_crude_transformed	The World Bank Data. World Development Indicators	The number of live births occurring per year per 1,000 midyear population. The difference between birth and death rates is the rate of natural increase.
Death_rate_crude	Death_rate_crude_transformed	The World Bank Data. World Development Indicators	Crude death rate indicates the number of deaths occurring during the year, per 1,000 population estimated at midyear.
Fertility_rate	Fertility_rate_transformed	The World Bank Data. World Development Indicators	Represents the number of children that would be born to a woman if she were to live to the end of her childbearing years and bear children in accordance with prevailing age-specific fertility rates.

Life_expectancy	Life_expectancy_transfo rmed	The World Bank Data. World Development Indicators	The number of years a newborn infant would live if prevailing patterns of mortality at the time of its birth were to stay the same throughout its life
Population_65_above	Population_65_above_tr ansformed	The World Bank Data. World Development Indicators	The percentage of the total population that is 65 or older
Pop_density	Pop_density_transforme d	The World Bank Data. World Development Indicators	Midyear population divided by land area in square kilometers
Pop_growth	Pop_growth_transforme d	The World Bank Data. World Development Indicators	The exponential rate of growth for the period indicated
Pop_tot	Pop_tot_transformed	The World Bank Data. World Development Indicators	Is an estimate for mid-year population, based, in most cases, on a de facto definition, which counts all residents regardless of legal status or citizenship
Urban population	Urban_popo_transforme d	The World Bank Data. World Development Indicators	The midyear population of areas defined as urban in each country as reported to the United Nations. It is measured here as the percentage of the total population

Appendix B: Marginal Contribution and Elasticity

PI: Marginal Contribution & Elasticity				
General				
Type of variable	Variable	Slope regress model	Mean	Marginal contribution	Elasticity
Economic	Trade_transformed	0.016	79.320	0.088	1.269
	Grossdom_product_cons_pri_transforme	0.071	3.520	0.392	0.250
	Unemployment_transformed	0.030	8.732	0.166	0.262
	Householdconsum_expenditure_transfo	0.000	11896.705	0.000	0.000
	Foreign_market_index_transformed	-0.214	4.979	-1.181	-1.066
	GDPPcapita_transformed	0.000	22097.258	0.000	0.000
Demographic	Urban_pop_transformed	0.000	41374571.070	0.000	0.000
	Death_rate_crude_transformed	-0.101	8.713	-0.557	-0.880
	Age_depen_ratio_transformed	-0.015	54.671	-0.083	-0.820
	Pop_growth_transformed	0.158	1.059	0.872	0.167
Developed Countries				
Economic	Trade_transformed	0.023	82.267	0.240	1.892
	Householdconsum_expenditure_transfo	0.000	19990.225	0.000	0.000
	Exports_goods_servs_transformed	0.000	291894814090.509	0.000	0.000
	Unemployment_transformed	0.083	6.960	0.868	0.578
Demographic	Age_depen_ratio_transformed	-0.108	51.077	-1.129	-5.516
	Life_expectancy_transformed	0.154	77.298	1.610	11.904
	Fertility_rate_transformed	1.143	1.775	11.949	2.029
	Urban_pop_transformed	0.000	33317470.657	0.000	0.000
	Population_65_above_transformed	0.095	13.712	0.993	1.303
	Pop_tot_transformed	0.000	43088313.320	0.000	0.000
Advanced Emerging Countries				
Economic	Volumeexports_goods_transformed	0.099	7.832	0.095	0.775
	Householdconsum_expenditure_transfo	0.000	5663.223	0.000	0.000
	Exports_goods_services_transformed	-0.065	7.465	-0.062	-0.485
	GDPPcapita_transformed	0.000	9447.717	0.000	0.000
Demographic	Age_depen_ratio_transformed	-0.118	54.429	-0.113	-6.423
	Pop_tot_transformed	0.000	66506943.211	0.000	0.000
	Pop_density_transformed	-0.023	81.384	-0.022	-1.872
	Population_65_above_transformed	-0.205	8.427	-0.197	-1.728
	Refugee_pop_transformed	0.000	14516.338	0.000	0.000
Secondary Emerging Countries				
Economic	Importgoods_services_transformed	0	90444480087.26	0.000	0.000
	Grossdom_product_cons_pri_transforme	0.085	5.42	0.046	0.461
	Trade_transformed	0.013	48.09	0.007	0.625
Demographic	Death_rate_crude_transformed	-0.165	7.62	-0.090	-1.257
Frontier Countries				
Economic	Trade_transformed	0.016	95.81	0.0201248	1.533
	Household_consumption_transformed	0.000	34906159441.21	0	0.000
	Domestic_mark_size_index_trnsformed	-0.957	3.25	-1.2037146	-3.115
	Foreign_market_index_transformed	-0.761	4.12	-0.9571858	-3.135
	GDP_PPP_transformed	0.000	114493623195.66	0	0.000
	Grossdom_product_cons_pri_transforme	0.049	4.05	0.0616322	0.199
Demographic	Death_rate_crude_transformed	-0.118	9.60	-0.1484204	-1.133
	Urban_pop_transformed	0.000	7650837.79	0	0.000
	Refugee_pop_transformed	0.000	27486.61	0	0.000

Type of variable	Variable	Slope regress model	Mean	Marginal contribution	Elasticity
FDI: Marginal Contribution & Elasticity					
General					
Economic	Trade_transformed	0.020	76.866	0.078	1.537
	Household_consumption_transformed	0.000	336286577059.725	0.000	0.000
	Grossdom_product_cons_pri_transformed	0.066	3.672	0.258	0.242
	Foreign_market_index_transformed	-0.660	4.955	-2.578	-3.270
	Householdconsum_expenditure_transformed	0.000	9720.652	0.000	0.000
Demographic	Pop_density_transformed	-0.002	232.750	-0.008	-0.465
	Death_rate_crude_transformed	0.118	8.784	0.461	1.036
	Fertility_rate_transformed	-0.575	2.819	-2.246	-1.621
	Life_expectancy_transformed	0.077	70.687	0.301	5.443
	Birth_rate_crude_transformed	0.119	20.602	0.465	2.452
Developed Countries					
Economic	Trade_transformed	0.019	81.708	0.075	1.552
	Household_consumption_transformed	0.000	681932294770.067	0.000	0.000
	Exports_goods_servs_transformed	0.000	258589837819.871	0.000	0.000
	Householdconsum_expenditure_transformed	0.000	18780.605	0.000	0.000
	GDPPcapita_transformed	0.000	35307.384	0.000	0.000
	Volume_Import_goods_transformed	0.017	5.185	0.067	0.088
	GDP_PPP_transformed	0.000	1520327283565.300	0.000	0.000
	Foreign_market_index_transformed	-0.569	5.463	-2.233	-3.108
Demographic	Pop_density_transformed	-0.002	384.131	-0.008	-0.768
	Pop_tot_transformed	0.000	37535877.317	0.000	0.000
Advanced Emerging Countries					
Economic	Trade_transformed	0.018	68.587	0.041	1.235
	Householdconsum_expenditure_transformed	0.000	5576.249	0.000	0.000
	GDP_PPP_transformed	0.000	800882183762.183	0.000	0.000
	Foreign_market_index_transformed	-1.241	5.409	-2.800	-6.712
	Volume_Import_goods_transformed	-0.044	7.557	-0.099	-0.333
	Exports_goods_servs_transformed	0.000	7.024	0.000	0.000
Demographic	Urban_pop_transformed	0.000	35593819.541	0.000	0.000
	Death_rate_crude_transformed	0.169	8.308	0.381	1.404
	Pop_tot_transformed	0.000	54193887.975	0.000	0.000
	Life_expectancy_transformed	0.093	69.538	0.210	6.467
Secondary Emerging Countries					
Economic	Grossdom_product_cons_pri_transformed	0.088	4.888	0.175	0.430
	Exports_goods_servs_transformed	0.000	5.852	0.000	0.000
	Trade_transformed	0.011	45.607	0.022	0.502
	importgoods_services_transformed	0.000	67606219584.036	0.000	0.000
	Householdconsum_expenditure_transformed	0.000	3249.186	0.000	0.000
Demographic	Life_expectancy_transformed	0.110	67.586	0.218	7.434
	Pop_tot_transformed	0.000	225415507.283	0.000	0.000
	Urban_pop_transformed	0.000	81919313.820	0.000	0.000
	Refugee_pop_transformed	0.000	44040.909	0.000	0.000
	Fertility_rate_transformed	-0.431	3.516	-0.855	-1.515
Frontier Countries					
Economic	Trade_transformed	0.026	90.297	0.142	2.348
	Household_consumption_transformed	0.000	3663.568	0.000	0.000
	Foreign_market_index_transformed	-1.490	4.150	-8.155	-6.183
	Grossdom_product_cons_pri_transformed	0.052	4.190	0.285	0.218
Demographic	Pop_density_transformed	-0.002	201.965	-0.011	-0.404
	Death_rate_crude_transformed	0.135	9.883	0.739	1.334
	Fertility_rate_transformed	-0.501	3.638	-2.742	-1.822
	Age_depen_ratio_transformed	-0.019	66.767	-0.104	-1.269
	Pop_growth_transformed	0.164	1.668	0.898	0.274
	Birth_rate_crude_transformed	0.070	25.861	0.383	1.810

Appendix C: Descriptive Statistics

Ln_FDI_INFLOWS

	Range	Minimum	Maximum	Mean		Standard deviation	Variance
	Statistical	Statistical	Statistical	Statistical	Standard error	Statistical	Statistical
Trade_transformed	439.46	0.20	439.66	76.79	1.08	55.48	3078.06
Household_consumption_transformed	11398014719370.30	615267400.42	11398629986770.80	331645145742.98	18799618481.11	965209835566.03	9316300266734000000000.00
Grossdom_product_cons_pri_transformed	49.28	-19.27	30.01	3.65	0.07	3.65	13.33
Foreign_market_index_transformed	4.90	2.10	7.00	4.96	0.03	0.89	0.79
Householdconsum_expenditure_transformed	41278.29	252.61	41530.90	9690.51	169.97	8726.36	76149373.35
Pop_density_transformed	7827.74	1.11	7828.86	232.75	13.88	712.79	508071.74
Death_rate_crude_transformed	21.13	1.48	22.61	8.80	0.06	3.17	10.04
Fertility_rate_transformed	7.28	1.08	8.35	2.83	0.03	1.64	2.69
Life_expectancy_transformed	42.41	41.18	83.59	70.64	0.16	8.20	67.20
Birth_rate_crude_transformed	43.43	7.60	51.03	20.64	0.21	10.79	116.44

Developed

	Range	Minimum	Maximum	Mean		Standard deviation	Variance
	Statistical	Statistical	Statistical	Statistical	Standard error	Statistical	Statistical
Trade_transformed	428.93	10.73	439.66	81.71	2.38	73.40	5388.24
Household_consumption_transformed	11394372976106.30	4257010664.47	11398629986770.80	642991957622.94	49347871057.70	1522603751403.03	2318322183786580000000000.00
exports_goods_services_transformed	60.06	-24.20	35.86	5.53	0.19	5.85	34.21
Householdconsum_expenditure_transformed	39034.97	2495.93	41530.90	18475.36	239.59	7392.52	54649359.32
GDPPcapita_transformed	103970.13	3171.12	107141.25	35192.30	551.28	17009.55	289324778.41
GDP_PPP_transformed	16852955090400.40	37284577130.28	16890239667530.70	1268570687998.10	71181371789.56	2196265439497.52	4823581880731260000000000.00
Foreign_market_index_transformed	3.00	3.80	6.70	5.46	0.04	0.65	0.43
Volume_Import_goods_transformed	67.03	-24.50	42.53	5.42	0.22	6.84	46.81
Pop_density_transformed	7827.23	1.63	7828.86	384.13	36.33	1120.93	1256491.75
Pop_tot_transformed	320972645.00	446175.00	321418820.00	37535877.32	1902012.67	58685644.78	3444004903521560.00

Advanced Emerging

	Range	Minimum	Maximum	Mean		Standard deviation	Variance
	Statistical	Statistical	Statistical	Statistical	Standard error	Statistical	Statistical
Trade_transformed	211.31	9.10	220.41	68.60	2.45	46.89	2198.61
Householdconsum_expenditure_transformed	19668.85	727.05	20395.90	5722.76	194.45	3720.03	13838611.71
GDP_PPP_transformed	2974997411504.92	149641774214.24	3124639185719.16	834193322393.72	29124774236.82	557189739326.29	310460405610504000000000.00
Foreign_market_index_transformed	1.90	4.10	6.00	5.41	0.04	0.40	0.16
Volume_Import_goods_transformed	114.50	-53.34	61.16	7.36	0.66	12.55	157.49
exports_goods_services_transformed	58.28	-18.52	39.76	6.79	0.40	7.70	59.27
Urban_pop_transformed	174448937.00	3649374.00	178098311.00	35593819.54	2059019.26	39391357.87	1551679075214010.00
Death_rate_crude_transformed	10.34	4.40	14.73	8.34	0.14	2.73	7.47
Pop_tot_transformed	199054722.00	8792806.00	207847528.00	54193887.98	2511527.01	48048340.84	2308643057077670.00
Life_expectancy_transformed	29.73	51.56	81.29	69.52	0.34	6.59	43.38

Secondary Emerging

	Range	Minimum	Maximum	Mean		Standard deviation	Variance
	Statistical	Statistical	Statistical	Statistical	Standard error	Statistical	Statistical
Grossdom_product_cons_pri_transformed	49.28	-19.27	30.01	4.71	0.22	4.71	22.16
Exports_goods_servs_transformed	1600305935831.28	2169308988.00	1602475244819.28	82147047490.03	5635527653.77	120341939501.60	14482182403007400000000.00
Trade_transformed	177.96	0.20	178.16	48.00	1.26	26.81	718.58
Importgoods_services_transformed	1376628698601.51	3446670289.09	1380075368890.60	75856120801.42	5005161554.96	106881003172.77	11423548839218600000000.00
Householdconsum_expenditure_transformed	37196.89	252.61	37449.50	4126.89	254.80	5440.99	29604415.00
Life_expectancy_transformed	28.65	52.85	81.50	67.62	0.28	6.03	36.38
Pop_tot_transformed	1371110671.00	109329.00	1371220000.00	225415507.28	18321954.99	391249894.33	153076479817078000.00
Urban_pop_transformed	762493694.00	96597.00	762590291.00	81919313.82	6466511.12	138086890.58	19067989349679000.00
Refugee_pop_transformed	551743.00	1.00	551744.00	36663.66	3241.90	69228.12	4792532549.19
Fertility_rate_transformed	5.75	1.17	6.92	3.51	0.07	1.44	2.08

Frontier

	Range	Minimum	Maximum	Mean		Standard deviation	Variance
	Statistical	Statistical	Statistical	Statistical	error	Statistical	Statistical
Trade_transformed	244.82	6.32	251.14	90.05	1.31	38.55	1486.46
Household_consumption_transformed	295158683993.95	615267400.42	295773951394.36	74518163516.44	3469188270.19	101854800441.40	10374400372958200000000.00
Foreign_market_index_transformed	3.60	2.10	5.70	4.15	0.04	0.64	0.41
Grossdom_product_cons_pri_transformed	38.23	-14.81	23.42	4.07	0.13	3.75	14.05
Pop_density_transformed	1767.63	1.11	1768.74	201.96	11.55	338.98	114907.82
Death_rate_crude_transformed	20.31	2.30	22.61	9.87	0.14	3.97	15.73
Fertility_rate_transformed	7.26	1.09	8.35	3.62	0.07	2.07	4.29
Age_depen_ratio_transformed	85.26	27.80	113.06	66.77	0.70	20.59	423.91
Pop_growth_transformed	13.75	-3.82	9.93	1.67	0.06	1.71	2.93
Birth_rate_crude_transformed	43.43	7.60	51.03	25.77	0.45	13.21	174.38

LN_PORT_INV_GDP

	Range	Minimum	Maximum	Mean		Standard deviation	Variance
	Statistical	Statistical	Statistical	Statistical	error	Statistical	Statistical
Trade_transformed	430.06	0.30	430.36	79.28	1.63	60.68	3682.14
Grossdom_product_cons_pri_transformed	38.98	-12.70	26.28	3.52	0.09	3.29	10.85
Unemployment_transformed	36.60	0.70	37.30	8.77	0.14	5.28	27.83
Householdconsum_expenditure_transformed	41165.27	365.63	41530.90	11787.11	257.87	9600.32	92166233.15
Foreign_market_index_transformed	4.90	2.10	7.00	4.98	0.04	0.92	0.84
GDPPcapita_transformed	109631.70	369.35	110001.05	22093.62	541.92	20175.10	407034628.50
Urban_pop_transformed	762456513.00	133778.00	762590291.00	41374571.07	2300946.29	85661977.79	7337974439134140.00
Death_rate_crude_transformed	16.32	1.48	17.80	8.74	0.07	2.75	7.58
Age_depen_ratio_transformed	94.02	19.03	113.06	54.67	0.34	12.50	156.13
Pop_growth_transformed	12.19	-2.26	9.93	1.06	0.03	1.20	1.44

Developed

	Range	Minimum	Maximum	Mean		Standard deviation	Variance
	Statistical	Statistical	Statistical	Statistical	Standard error	Statistical	Statistical
Trade_transformed	419.63	10.73	430.36	82.25	3.00	77.21	5961.89
Householdconsum_expenditure_transformed	36053.60	5477.30	41530.90	19686.47	290.02	7461.96	55680844.87
Exports_goods_servs_transformed	2165737285611.26	9560296688.74	2175297582300.00	289203162272.49	12604550719.41	324307031423.71	10517505063086100000000.00
Unemployment_transformed	24.60	1.70	26.30	7.67	0.13	3.23	10.43
Age_depen_ratio_transformed	35.71	35.78	71.49	51.08	0.23	5.98	35.72
Life_expectancy_transformed	14.81	68.78	83.59	77.07	0.13	3.44	11.81
Fertility_rate_transformed	2.74	1.08	3.81	1.81	0.02	0.47	0.22
Urban_pop_transformed	259359928.00	380583.00	259740511.00	33317470.66	1928949.86	49630646.76	2463201097980000.00
Population_65_above_transformed	22.72	3.62	26.34	13.71	0.14	3.64	13.25
Pop_tot_transformed	318461226.00	446175.00	318907401.00	43088313.32	2467413.76	63484978.43	4030342485817590.00

Advanced Emerging

	Range	Minimum	Maximum	Mean		Standard deviation	Variance
	Statistical	Statistical	Statistical	Statistical	Standard error	Statistical	Statistical
Volumeexports_goods_transformed	73.86	-21.55	52.31	7.76	0.68	9.22	85.04
Householdconsum_expenditure_transformed	19275.54	727.05	20002.59	5683.46	275.54	3747.74	14045519.72
exports_goods_services_transformed	58.28	-18.52	39.76	7.38	0.63	8.54	72.86
GDPPcapita_transformed	28986.32	1070.35	30056.68	9447.72	425.12	5782.23	33434184.75
Age_depen_ratio_transformed	46.43	38.81	85.24	54.43	0.76	10.30	106.04
Pop_tot_transformed	198002842.00	9844686.00	207847528.00	66506943.21	3973524.28	54045773.37	2920945619402880.00
Pop_density_transformed	121.30	15.32	136.62	81.38	2.91	39.63	1570.45
Population_65_above_transformed	18.21	3.18	21.40	8.43	0.37	4.98	24.76
Refugee_pop_transformed	227221.00	11.00	227232.00	15816.22	2934.58	39914.66	1593180178.93

Secondary Emerging

	Range	Minimum	Maximum	Mean		Standard deviation	Variance
	Statistical	Statistical	Statistical	Statistical	Standard error	Statistical	Statistical
Importgoods_services_transformed	1371090748212.13	8984620678.47	1380075368890.60	93018696729.67	10161842467.15	135956186238.67	18484084576563100000000.00
Grossdom_product_cons_pri_transformed	26.90	-12.70	14.20	5.42	0.25	3.38	11.45
Trade_transformed	102.34	0.30	102.64	48.37	1.39	18.57	345.02
Death_rate_crude_transformed	14.92	1.48	16.40	7.68	0.20	2.69	7.21

Frontier

	Range	Minimum	Maximum	Mean		Standard deviation	Variance
	Statistical	Statistical	Statistical	Statistical	error	Statistical	Statistical
Trade_transformed	234.33	16.81	251.14	95.56	1.97	37.46	1402.89
Household_consumption_transformed	294905070979.50	868880414.86	295773951394.36	61717571391.95	4786446817.70	90816443059.23	8247626329931110000000.00
Domestic_mark_size_index_transformed	2.90	1.60	4.50	3.25	0.06	0.72	0.52
Foreign_market_index_transformed	3.60	2.10	5.70	4.12	0.06	0.72	0.52
GDP_PPP_transformed	994802194533.25	6064229582.00	1000866424115.25	173721839436.76	13424306562.03	254708308466.14	64876322401681200000000.00
Grossdom_product_cons_pri_transformed	26.91	-8.04	18.87	4.02	0.19	3.52	12.39
Death_rate_crude_transformed	15.50	2.30	17.80	9.60	0.20	3.72	13.84
Urban_pop_transformed	83176999.00	133778.00	83310777.00	7650837.79	677852.82	12861352.99	165414400632300.00
Refugee_pop_transformed	374277.00	2.00	374279.00	27235.27	3677.15	69769.08	4867725150.20

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In the social sector, he participated as a board member of the Global Compact Mexico which is the social responsibility branch of the UN, and as a trustee of a successful NGO, called Mexican Kidney Foundation.

He usually writes articles in newspapers and magazines. He published the book "The Executive Power of Mexico" and "Shared responsibility model", as well as a chapter of the book "Beyond business plan", about social responsibility. His current research topic is megatrends and demographic shift.