## Chile's Education Crisis: Part 3 of a Case of Study

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#### Abstract

This article is intended to itemize and describe factors which are essential to give rise to a wellorganized community for the citizens in the Republic of Chile. Over many decades, actions have been taken to make substantial progress that have increased the quality of life for citizens in an extremely demanding world, while facing an evolution in topics such as technology, science, humanities, social sciences, and fine arts. Many societies are re-organizing their way of life to catch up with the vast changes and growing speed of knowledge. Therefore, small countries that have a fragile economy must do better to become competitive with other nations so as to keep a fair balance between exports and imports. The decision should be made: Chile must either fight to be competitive and create and innovate, or its citizens are going to become poorer.

#### I. Preliminary Remarks

In Parts 1 and 2 the focus was on the factors which should be considered improve the quality and the efficiency of the educational process in Chile. [1, 2]

There are some positive and negative issues about the policies already implemented and others that are soon to become laws in this country. The Chilean educational system is made of several levels: kindergarten (1 year), kinder (1 year), basic education (8 years), higher basic education (4 years), and Higher Educational Studies (Centers for Technical Trainee, CFT). [Professional Institutions (IP) and Universities (U)]

The length of the time from kindergarten to high basic education graduate is approximately fourteen years. A majority of children are enrolled in kindergarten when they are about 4 years old. Then when they are in the range between 18-20 years old, they are in the position to take the national test known as the University Selection Test (PSU) so as to assess the knowledge and the intellectual maturation they have procured during their basic studies at school level. The next step is to apply to different centers after higher basic education, as well as choosing one or more subjects to study.

While this process seems simple in theory, it can be troubling with students who do not excel academically. As a consequence, they receive a score which is not suitable to enter the top universities in the country. The ranking of the Universities (U) and Centers such as Professional Institutions (IP) and Centers for Technical Trainee (CFT) are published so the parents within a community get a sensible idea of which schools their children may attend. Today, many of these students will choose to get a paid job and/or partake in entrepreneurship instead of continuing their education. This choice seems to be an activity where they are able to get some money to carry on their lives rather than creation and innovation in science, technology, social sciences, and fine arts.

At the government level, a solution was introduced to offer the poorest students access to carry on their studies, though the score obtained at the PSU exam is still crucial in choosing the best possible option. It is known that the highest ranking students will enter the highest ranking universities in the country and will have a variety of opportunities in their lives, however, they still must commit themselves to valid academic career in the best possible institutions. This way they can gain access to new technologies and be challenged by the techniques and tools in developed countries.

There is evidence eve that high performing students should spend time and opportunities abroad, since these experiences are likely be beneficial for progress domestically. Based on research, Chilean students apply to higher education institutions in countries such as Brazil, Argentina, the United States of America, Canada, the United Kingdom, France, Germany, Australia, New Zealand, Japan, and Spain. However, Chile need to take into account that there is a language barrier to overcome in countries where Spanish is not the national language.

It is essential that the foundation for development should be made up young and well gifted people who are able push forth the process to create conditions that may improve the quality of lives. This is a practical issue that can and is affecting every Chilean citizen.

Part 1 and 2 of this series concentrated on a number of topics that are essential in the departure from the involution process: poverty, lack of opportunities, job restrictions, both low and inefficient quality of education, unavailability of fair conditions of housing, cost of living, and poor retirement conditions. This article will analyze this point further.

#### II. Introduction

As underlined in both the Abstract and the Preliminary Remarks, Chile has a number of technical handicaps which prevent it from being a force powerful enough to install a culture of learning and applying qualified knowledge. For this reason, those in government must create better conditions for all citizens. This goal may only be achieved with the strong agreement between the people and the authorities in office to work for progress. The lack of this commitment is one of the main sources of failure and as a result Chile has created a frustrated society, with a questionable future in the current global market.

The people of Chile must stop living in the past and take solid action for the future. This action can be inspired by more advanced societies across the world. Numerous countries have faced two world wars, but have proved to the world their ability and capacity to overcome a number of difficulties. There is no a perfect society, but a handful of countries have learned from the past to create thriving societies over decades of innovation. Yet there are other countries that are passively waiting for a miracle to occur.

Every society should base its progress upon a number of principles and values, related to learning. This interest in learning should be encouraged with incentives and opportunities that will allow them to grow as contributing members of a community. To run a country effectively, Chile will need to implement the right policies to help educate and train people with the goal of achieving learning capacity and the ability to re-tool as the economy changes and develops.

Countries with no clear rules are doomed to fail, and as a consequence cannot progress. The lack of progress in a society is synonymous with transversal ignorance, thus Chile must be willing to listen to learn from more advanced societies (those which have shown to be proactive and achieve growth).

Chile is a country of great people with a complex geography and bountiful natural resources. Chile is not growing as it should be, in spite of the many structural changes.

There are many signs that indicate the economy is not as good as it should be, and this means few resources will be available to finance new changes in education, health care, housing, and natural resources. Furthermore, the decline in the birth rate is creating a formidable problem since the number of elderly people is increasing at a high rate, whereas opportunities for the youngest are becoming scarce. This ratio of older to younger people is not ideal for a model society, and the equilibrium has become unbalanced.

A potential cause for this unbalance is the retirement age: women are eligible at sixty years old and men at sixty-five years old. However, there is a strong possibility for a drastic change to the retirement age, as suggested by the Bravo Commission.

Should this change go through, the new retirement age would be sixty-five years old for female and seventy years old for male. This change would address the current pensions which provide below-average financing and do not meet cost of living expenses.

While this issue is both an international and domestic problem, health care, cost of living, housing, clothing, and utility services are very expensive in Chile. Many Chileans live with the average cost of living of developed countries but with Chilean wages.

For example: the average wage for a formal job in Chile is about \$750 per month. The rate of inflation, as reported by the National Statistical Institute of the Republic of Chile (INE), is 1.5-1.7%. However, this number calls for an open debate since when people buy general household goods, one soon realizes that the inflation rate is higher. This makes it seem that the government misleads the public about the real figure of inflation and many of the products from which the "domestic basket" is made up are not representative of the real situation. [3]

It must be mentioned that according to the government the unemployment rate is 6-7%, but it can be argued that this percentage is not representative of the actual situation in Chile. The unemployment rate is high, primarily among the youth and elderly people. Low pensions for people mean a real and dramatic need for many of them to look for additional streams of income. This is unfortunate since after many decades of hard work, people should be able to retire in adequate conditions but are unable to do so in the current climate.

It is a complex situation, though there has been some success in other areas of the overall system. Still, Chile must realize that a country should be built upon careful indicators and metrics, so as to build strong economy and raise well educated people.

#### III. Further Reflections towards the Concept of a Solid University Model

When discussing vision and the mission which any University must exhibit and validate through the course of time, it is essential to be able to prove the following:

- 1. Vision: the professionals trained by these Institutions must be recognized as proactive, competent, and well gifted at both national and regional level. The University must be viewed as a community made up of masters working together in close intellectual collaboration to give rise to ideas, projects, and planning of activities.
- 2. Mission: the strategy to should be followed to reach the declared vision

To expand on these two concepts, follow the principle built below:

Let i(t), I(t), I'(t) be a set of three magnitudes defined as follows: average knowledge of the students, average knowledge of the lecturers, and average knowledge in the field all over the most developed countries in the world (all these magnitudes measured at the same time).

In any given Higher Education Institution, one should expect that the chain |i(t)| < |I(t)| < |I'(t)| must be fulfilled.

Next, examine the differences: (a) 
$$\Delta(t) = |I(t)| - |i(t)|$$
, (b)  $\Delta' = |I'(t)| - |I(t)|$  and (c)  $\Delta''(t) = \Delta'(t) - \Delta(t)$ 

In any solid institution, the quality of both students and academic staff must be recognized by global society as first class, though the above pointed out differences should follow the trend:  $\Delta'(t) \leq \Delta(t)$  so as  $\Delta''(t)$  and these should become smaller and smaller in time.

When this tendency is not fulfilled, drastic changes and modification should be done promptly.

A solid Higher Education Institution must be assessed by a generic function of the kind:  $f = f(x_1, x_2, x_3, ..., x_N)$ where the variables  $x_i$  (i = 1, 2, ..., N) may be defined as follows:

- $x_1$  quality of the students
- $x_2$  effectiveness and creativity of the academic staff
- $x_3$  quality and impact of the research done at the Institution

- $x_4$  relevance of the research done and degree of success of the interaction of mutual benefit between the University and the productive sector
- $x_5$  installment of new and updated laboratories
- $x_6$  research grants and number of projects with internal and external funding at both national and international level
- $x_7$  efficiency of administrative and financial process associated with the Institution
- $x_8$  regular updated of the curricula with in close agreement with the triad research-teaching-creativity
- $x_{0}$  assessment and accreditation of the different bodies of the Institution
- $x_{10}$  academic assessment of the staff (full-time professors, associate professors, and assistant professors)
- $x_{11}$  links with top Centers of Research at both national and international levels
- $x_{12}$  rate of retention of the students
- $x_{13}$  indicators of the graduate students in due time
- $x_{14}$  indicator of the abandonment of the students per level before graduation
- $x_{15}$  rate of employee of the graduate students

The next step in the analysis is to examine the relative position of the Universities in Chile in comparison with analogue Institution in Latin America and then take into account the position in any well and recognized ranking of Universities in the world (see Tables 1 and 2, below).

## Table 1: Ranking of the relative positions of the main Universities in Latin America [4]

The British magazine "Times High Education" (THE) conducted a study of the top universities in Latin America, with Brazil ranking at number 1. A total of 81 universities were studied and the results are very illuminating: 32 of the universities are from Brazil, 17 from Chile, 13 from Mexico, and 11 from Columbia. For the sake of brevity, this article will list the top 20 universities. In 2017, both Argentina and Ecuador agreed to supply the data so this is the first time that the countries have appeared in the ranking.

Though Brazil is in full command of the present ranking, it performed worse than previous versions and the number of Brazilian universities in this 50-group decreased from 23 to 18. In the second group (lower that position 50) a number of 20 of their Universities was ranked lower that during 2016.

Phil Baty, the editor of THE, claimed that Brazil uses more resources towards both research and development, though this investment is still below average when compared to other developed countries. Both the Universidad Católica (Chile) and the Universidad de Chile (Chile) have been ranked in the first group of the 50-top universities.

The Universidad Católica is ranked in the third position whereas the Universidad de Chile in the fourth position of the 81 studied Universities in Latin America.

It is interesting to note that this British Agency bases its studies with the following indicators: teaching, quality of the research, citations of the research work carried out by the institutions and its academic staff, and international impact and transfer of pure and applied knowledge to the Productive Sector (in total, they employ 13 indicators).

## Ranking of the Top 20 Universities in Latin America [4]

| Position | Name of the Institution                       | Country  |
|----------|---|----------|
| 1        | Universidad Estatal de Campinas               | Brazil   |
| 2        | Universidad de Sao Paulo                      | Brazil   |
| 3        | Pontificia Universidad Católica de Chile      | Chile    |
| 4        | Universidad de Chile                          | Chile    |
| 5        | Universidad de los Andes                      | Colombia |
| 6        | Instituto Tecnológico y de Estudios           |          |
|          | Superiores de Monterrey                       | Mexico   |
| 7        | Universidad Federal de Sao Paulo              |          |
|          | (UNIFESP)                                     | Brasil   |
| 8        | Universidad Federal de Rio de Janeiro         | Brazil   |
| 9        | Pontificia Universidad Católica de Rio        |          |
|          | De Janeiro                                    | Brazil   |
| 10       | Universidad Nacional Autónoma de Mexico       | Mexico   |
| 11       | Universidad Federal de Minas de Gerais        | Brazil   |
| 12       | Universidad Estatal Paulista                  | Brazil   |
| 13       | Universidad de Concepción                     | Chile    |
| 14       | Universidad Federal de ABC(UFABC)             | Brazil   |
| 15       | Universidad Federal de Santa Catarina         | Brazil   |
| 16       | Pontificia Universidad Católica de Rio        |          |
|          | Grande del Sur (PUCRS)                        | Brazil   |
| 17       | Universidad de Antioquía                      | Colombia |
| 18       | Universidad Federal de Sao Carlos             | Brazil   |
| 19       | Universidad de Brasilia                       | Brazil   |
| 20       | Universidad Nacional de Colombia              | Colombia |
| 20       | Pontificia Universidad Católica de Valparaiso | Chile    |

Two additional reports are available: (a) Listing of the countries with most students enrolled in Universities in the United States of America and (b) Critical Study about the most likely reasons about the unexpected number of students (almost double) studying in Latin America Universities. [5] [6]

## Table 2: Students from Latin America registered in USA Universities [5]

Many students make an effort to travel to the United States and to get admitted by a top university. The quality of resources in the USA is impressive when compared with the reality in Latin America. One of the more recent ranking delivered by THE indicates that 6 of the top 10 universities in the world are located in the USA. Some of these universities are Harvard, Stanford, Princeton and MIT. Additionally, when observing the top 50 universities in the world, approximately half of them are located in the USA. In the top 50 positions, one will find places such as Yale, Columbia, and UCLA.

According to the Department of Homeland Security, as of May 2017 there are 1,379,370 foreign students in different programs in the USA (194,635 are exchange students). The students from Latin America in this group breaks down as follows:

Brazil: 21,768 students Mexico: 16,207 students Venezuela: 12,035 students Colombia: 10,558 students

There are also students from Latin America working for an academic degree:

Brazil: 4,314 students Mexico: 4,032 students Colombia: 3,129 students Venezuela: 1,873 students Peru: 1,178 students

Chile has a number of students in different programs close to 1,900. This number includes different levels: academic exchanges, English learning, athletics, and academics.

## Table 3: Global World Ranking [7,8,9]

After careful research of the World University Rankings, it is clear that these studies differ since the number of indicators utilized vary from one statistic to another. Nevertheless, it is almost a constant that in this case of study, Chile, the best universities are La Pontificia Universidad, Católica de Chile, and the Universidad de Chile. It is not encouraging to realize that even Chile's top institutions are in a low position in any World University Rankings.

This ranking can be highlighted in at least three different University Rankings: Ranking Web de Universidades. Consejo Superior de Investigaciones Científicas, January 2017. Edition 2017.1.1, QS World University Rankings 2017, and World University Rankings: 2016-2017. This article must emphasize that the relative positions depend on the indicators employed, the size of the sample, and the methodology adopted.

# Ranking Web de Universidades. Consejo Superior de Investigaciones Científicas, January. 2017. Edition 2017.1.1

| Universidad de Chile   | 318 |
|------------------------|-----|
| Pontificia Universidad | 509 |
| Católica de Chile      |     |

#### **QS World University Rankings 2017**

Pontificia Universidad 147 Católica de Chile 200 Universidad de Chile

#### World University Rankings 2016-2017

Pontificia Universidad

Católica de Chile 401-500 Universidad de Chile 501-600

## Table 4: Ranking of the Chilean Careers (\*\*). Professional and Technical Titles Obtained (2016)

A sensible indicator to be included in any ranking is the number of successful students per career whom obtained their titles (Alumni) as well as the number of students per institution who are employed in the field of their undergraduate study. This latter data is not widely available to the public. The data available with reference to Alumni is, according to the local newspaper "Las Ultimas Noticias, last July 23, 2017". [10]

| Career  | Number of Alumni         | Institutions(*)                       |
|---|--------------------------|---------------------------------------|
| Téc.Enfermería <sup>1</sup>   | 13,579                   | CFT,IP,Universities                   |
| Téc.Administración de Empresas <sup>2</sup>   | 10,626                   | CFT,IP,Universities                   |
| Téc. Prevensión de Riesgos <sup>3</sup>   | 9,361                    | CFT,IP,Universities                   |
| Ing.Comercial <sup>4</sup>  | 6,726                    | Universities                          |
| Adm. Empresas e Ing. Asociadas <sup>5</sup>   | 6,393                    | IP, Universities                      |
| Ing.Prevensión de Riesgos <sup>6</sup>  | 6,286                    | IP,Universities                       |
| Enfermería <sup>7</sup>   | 5,314                    | Universities                          |
| Téc. Asistentes. Ed. Párvulos <sup>8</sup>  | 4,857                    | CFT,IP,Universities                   |
| Trabajo Social 9  | 4,703                    | IP,Universities                       |
| Ing.Civil Industrial <sup>10</sup>  | 4,359                    | Universities                          |
| Psicología <sup>11</sup>  | 3,953                    | Universities                          |
| Derecho <sup>12</sup>   | 3,726                    | Universities                          |
| Contador Auditor <sup>13</sup>  | 3,617                    | IP,Universities                       |
| Ped.Educación Diferencial <sup>14</sup>   | 3,280                    | IP,Universities                       |
| Ing.Computación e Informática <sup>15</sup>   | 3,087                    | IP, Universities                      |
| Kinesiología <sup>16</sup>  |                          | IP, Universities                      |
| Téc.Mec.Automotriz <sup>17</sup>  | 2,991                    | · · · · · · · · · · · · · · · · · · · |
| Ped.Educ.Párvulos <sup>18</sup>   | 2,982                    | CFT,IP,Universities                   |
|   | 2,814                    | IP, Universities                      |
| Téc.Construcción y Obras Civviles <sup>19</sup><br>Ped.Educación Física <sup>20</sup> | 2,781                    | CFT,IP,Universities                   |
|   | 2,716                    | Universities                          |
| Psicopedagogía <sup>21</sup>  | 2,420                    | IP, Universities                      |
| Ped.Educ.Básica <sup>22</sup>   | 2,333                    | IP,Universities                       |
| Téc.Deportes y Preparación Física <sup>23</sup>                                       | 2,006                    | CFT,IP,Universities                   |
| Téc.Servicio Social <sup>24</sup>   | 1,997                    | CFT,IP,Universities                   |
| Téc.Gastronomía y Cecinas <sup>25</sup>   | 1,928                    | CFT,IP,Universities                   |
| Nutrición y Dietética <sup>26</sup>   | 1,838                    | IP, Universities                      |
| Téc. Asistente. Educ. Diferencial <sup>27</sup>                                       | 1,831                    | CFT,IP                                |
| Téc.Electric y Electric.Industrial <sup>28</sup>                                      | 1,814                    | CFT,IP,Universities                   |
| Ing.Construcción <sup>29</sup>  | 1,760                    | IP, Universities                      |
| Fonoaudiología <sup>30</sup>  | 1,697                    | IP, Universities                      |
| Téc.Dental y Asist de Odontología <sup>31</sup>                                       | 1,681                    | CFT,IP                                |
| Téc.Contabilidad General <sup>32</sup>  | 1,659                    | CFT,IP,Universities                   |
| Medicina <sup>33</sup>  | 1,597                    | Universities                          |
| Ped.Idiomas <sup>34</sup>   | 1,570                    | IP, Universities                      |
| Téc.Mantención Industrial <sup>35</sup>   | 1,551                    | CFT,IP,Universities                   |
| Odontología <sup>36</sup>   | 1,525                    | Universities                          |
| Ing.Mecánica Automotriz <sup>37</sup>   | 1,517                    | IP                                    |
| Téc.Minería y Metalúrgica <sup>38</sup>   | 1,506                    | CFT,IP,Universities                   |
| Téc.Computación e Informática <sup>39</sup>   | 1,496                    | CFT,IP,Universities                   |
| Construcción Civil <sup>40</sup>  | 1,425                    | IP, Universities                      |
| Téc.Admin.Recursos Humanos y Perso  | onal <sup>41</sup> 1,417 | CFT,IP,Universities                   |
| Ing.Recursos Humanos <sup>42</sup>  | 1,305                    | IP, Universities                      |
| Adminis Pública <sup>43</sup>   | 1,247                    | IP, Universities                      |
| Ing.Industrial <sup>44</sup>  | 1,245                    | IP, Universities                      |
| Téc.Turismo y Hotelería <sup>45</sup>   | 1,244                    | CFT,IP,Universities                   |
| Arquitectura <sup>46</sup>  | 1,213                    | Universities                          |
| Diseño Gráfico <sup>47</sup>  | 1,096                    | IP, Universities                      |
| Tecnología Médica <sup>48</sup>   | 1,066                    | Universities                          |
| Medicina Veterinaria <sup>49</sup>  | 1,061                    | Universities                          |
| Téc.Agropecuario <sup>50</sup>  | 1,031                    | CFT,IP,Universities                   |
|   | ,                        | , ,                                   |

#### Professional Titles in English:

- 1) Nursing (Technician)
- 2) Enterprise Administration (Technician)
- 3) Risk managers prevention (Technician)
- 4) Business Administration
- 5) Enterprise Administration and associated Engineering
- 6) Risk Prevention Engineering
- 7) Nursing
- 8) Assistant Technician Infant Education
- 9) Social Workers
- 10) Civil Industrial Engineering
- 11) Psychologist
- 12) Law
- 13) Cost Accountant
- 14) Pedagogic in Differential Education
- 15) Computing and Informatics Engineering
- 16) Bones Massaging
- 17) Car Mechanics (Technician)
- 18) Pedagogic in Infants
- 19) Building Construction and Civil Building Works
- 20) Pedagogic in Physical Education
- 21) Psychoanalytic
- 22) Pedagogic in Basic Education
- 23) Sport Technicians and Physical Training
- 24) Social Service (Technician)
- 25) Food Technician and Gourmet Cooking
- 26) Nutritionist and Dietician
- 27) Assistant Technician in Differential Education
- 28) Electricity and Industrial (Technician)
- 29) Building Construction Engineer
- 30) Sound Expert
- 31) Dental Technician and Assistants
- 32) General Accounting (Technicians)
- 33) Medicine
- 34) Pedagogic in Languages
- 35) Industrial Keeping (Technician)
- 36) Odontology
- 37) Car Mechanic Engineering
- 38) Mining and Metallurgic Engineering
- 39) Computing and Informatics (Technician)
- 40) Civil Engineering
- 41) Human Resources (Technician)
- 42) Human Resources Engineering
- 43) Public Administration
- 44) Industrial Engineer
- 45) Tourism and Resorts
- 46) Architecture
- 47) Graphic Design
- 48) Medicine Technologist
- 49) Medicine major in Animal Health Care
- 50) Agricultural (Technician)
- (\*) Nomenclature of the Institutions: CFT (Centers for Technical Trainee) and IP (Professional Institutions)

(\*\*) The various careers have been written in both Spanish (The professional titles are in Spanish) and English. Though, it is remarkable that the careers with the greater number of Alumni are: Nursing Technicians (13,579), Enterprise Administration Technicians (10,626), Risk Managers Prevention (9,361), Business Administration (6,726), Enterprise Managers and Associated Engineering (6,393), Risk Prevention Engineering (6,286), and Nursing (5,314).

At first glance, one can observe that the same title may be obtained from different institutions, in some cases from CFT, IP and Universities. This lack of symmetry is difficult to understand since one assumes that universities should have higher standards. It does seem more than advisable to reach standard criteria for all the listed careers.

### Table 5: Exam of University Selection (PSU), PSU (DEMRE), Number of Students registered to be called to account for the PSU

For decades, Chile has required students to take a national exam of University Selection (known as PSU). This exam must be taken in order to access the Higher Education System at universities. This exam is not compulsory for Professional Institutes (IP) and Centers for Technical Trainee (CFT). The top universities in Chile demand excellent results at the secondary education and the PSU.

There are further requirements to be fulfilled by the students and they must be prepared to pay tuition throughout the length of their academic career. It is common that the more prestigious Higher Education Institutions are usually more expensive. In these highly quality institutions in Chile, they are characterized as complex Universities (lecturing-research-extension).

These institutions have proper facilities for the students to access good material infrastructure, fairly updated laboratory facilities, quality libraries, fair administration procedures, and some additional facilities such as: athletics, reading lectures, conference rooms, and audiovisual facilities. With reference to the higher authorities, academic staff and personnel, it is clear that these institutions have been working on these strategic plans for years and have obtained that almost 100 % of the careers they offered to the students are accredited (seal of quality).

A rather different situation occurs with many institutions with low and inadequate profiles. For reasons still unclear, the accreditation procedure in Chile seems to be inadequate. A university can be accredited for a number of years when it shows a high level of teaching, financial, and administrative procedures as well as least two majors of study.

Each university should be accredited at least for five years (to account for the length of the undergraduate study) and there must be a fair number of full time academic members of the staff lecturing and researching in collaboration with their students. These requirements should also be more demanding when postgraduate studies are offered to students. It is almost impossible to understand how an institution can freely offer an academic degree without having the undergraduate careers accredited.

There are a number of initiatives to remove these obstacles and to demand a university to satisfy the best practices and standards of quality.

The above illustrated situation is different than the study for both CFT and IP in Chile. These two institutions are mainly made up of students seeking a professional title to have their own business and/or the private sector. These professionals should, nevertheless, be subjected to a continuous update of their knowledge and expertise. The situation is different when compared with that of universities.

Some of the primary indicators to enter a university are provided in details in References [11,12,13] The data in [13] indicated that during 2016 a total of 289,244 students applied to take the PSU. Provided that they satisfy the requirements, they may then apply for a bank credit, scholarships, and free studies.

Students from wealthy families are more likely to apply to expensive universities such as Adolfo Ibañez, Universidad del Desarrollo, Universidad de los Andes, Pontificia Universidad Católica de Chile, and Universidad de Chile.

The indicator known as "Puntaje de corte" is the minimum score a student needs to obtain in order to apply to a given University. The listing is complete in [11], results and scores obtained by the students at the PSU are given in [12], and the admission per academic career is listed in [13]. The listings of this data are open to the public and therefore unnecessary to include in this article.

#### IV. Discussion

This article has presented data and advanced on topics which should be considered by a high Commission of Experts to work on a number of fundamental principles and duties to be fulfilled by any Educational Institution in the Republic of Chile. As a country, there is an urgent need to be more creative and pro-active in order to become competitive in the global economy.

The discussion may be based upon a technical viewpoint so as to analyze the strength and weakness of the entire education system. A number of attempts have been carried out over several decades, however the results are not as expected. Chile has a fragile economy so people in office need to put forward the best possible short and long term policies and re-organize the Chilean society.

The number of aspirations is too large to handle unless a re-organization of many fundamental institutions is done with and for the people. The income versus the outcome of the country is unbalanced so the debt is growing quickly and the country's competitive strength is getting weaker.

The rate of unemployment is over 7% and the official average debt is estimated to be approximately \$10,900 per man and \$10,000 per woman. [14] Due to these debts, loans for house buying, tuition fees and so forth have not been considered.

Finally, Chile must consider the type of professionals it needs to face the immediate and distant future. Titles and academic degrees should be of high quality so as to facilitate the mobility of people around the world. If not, Chile may anticipate a excess capacity of human resources; low income levels accruing increases in poverty; and widening gaps between the socio-economic classes. This essential issue will be considered in Part 4 of this series of articles.

#### V. References

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