

Multivariate Analysis Of The Social And Labor Impact Of Graduates At The Linkage Center Of Antofagasta, Unap

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Abstract

The purpose of the research was to design a model proposed from a statistical point of view for a management model for the follow-up of graduates at the UNAP's Antofagasta Outreach Center. Information related to employment was obtained through surveys of graduates of this higher education institution.

This regional project is proposed as an exploratory and innovative statistical design, insofar as the main objective is to learn about an integrated model of relations between graduates and the university that has welcomed them for years. For this purpose, information was obtained from the UNAP Alumni Office.

In recent years, the situation of universities has undergone important changes that led them to focus on two closely related aspects: perceived service quality and satisfaction.

In general, the aim is to measure variables related to the behavior and perception of graduates through multivariate models and structural equations to verify the proposed relationships.

The most relevant results will be processed under two platforms:

- 1.- Analysis of the information through Spad. v 5.6 software.
- 2.- Analysis of the information through SPSS v 21.0 software.

Through this analysis, it is of interest to know the loyalty of graduates to the university, satisfaction, perceived image, graduate-university identification, employment and linkage.

Keywords: multivariate analysis, graduates, university.

RESUMEN

La siguiente investigación tuvo como finalidad el diseño de un modelo propuesto bajo el punto de vista estadístico para un modelo de gestión para el seguimiento de egresados del Centro de Vinculación de Antofagasta de la UNAP. A través de encuestas realizadas a egresados de esta casa de estudios superior, se obtuvo información relacionada con el empleo.

Ese proyecto regional se plantea como un diseño estadístico exploratorio e innovador, en la medida que el objetivo central es conocer un modelo integrado de relaciones entre el egresado y la universidad que los acogió durante años. Para ello se contó con la información de la Oficina de Egresados de la Unap.

En los últimos años la situación de las universidades ha experimentado cambios importantes que han hecho que éstas se preocupen de dos aspectos estrechamente ligados: calidad de servicio percibido y satisfacción

Lo que se pretende en general, radica en la medición de variables relativas al comportamiento y percepción de los egresados a través de modelos multivariantes y de ecuaciones estructurales para verificar las relaciones planteadas.

Los resultados más relevantes se procesarán bajo dos plataformas:

- 1.- Análisis de la información a través del software Weka v. 6.2
- 2.- Análisis de la información a través del software SPSS v 21.0

A través de este análisis interesa conocer la lealtad de los egresados hacia la universidad, la satisfacción, la imagen percibida, la identificación egresado-universidad, empleo y vinculación.

Palabras claves: análisis multivariante, egresados, universidad.

1.- Introduction

In the current times of accreditation and quality, higher education institutions must be aware of the importance of being able to know the performance of their students and what was the path they undertook once graduated from the university classrooms, therefore the university with its alumni office have an extremely important role, since in this area the information is collected evaluating the quality of professionals, through proper monitoring, which is achieved through integrated management

between each of the areas of the University, allowing the flow of information on their graduates.

The changes experienced by the university in recent decades have given rise to its current heterogeneity and massification, making higher education systems more complex. This has affected the quality and transparency of its activities, affecting social trust in its results, which led to the need to establish procedures that guarantee such quality and safeguard public faith, through the incorporation of recognized institutional evaluation and accreditation systems, which are expected to contribute, in addition, to the improvement of the academic efficiency and effectiveness of the institutions (Cinda, 1993).

It is of utmost importance to know and analyze the data, in order to know important aspects such as: are your graduates working in the career they studied? are they employed? in what area of economic activity do they work? In what area of economic activity do they work? etc.

With this information obtained from the follow-up of its graduates and that serves as input to define and take different actions, such as for example, to know if the curricular redesign plans and study programs are adequate to know in a timely manner if the university is doing its job well and in the right direction.

Establishing the link between educational institutions and their graduates is one of the strategies that allow them to guide their institutional actions, since these interactions are definitive in the processes of feedback and identification of their responsibility to society and enable them to know their demands and needs. The graduate should be considered then, as an important source of feedback of the academic and curricular reflections of each academic program offered by the university, of the scenarios of work performance and problems to be addressed, of the capacity of response from the personal and professional competences to the demands of the environment, and of the areas and topics on which continuous and advanced training could be offered. The real challenge of the university with its graduates is to generate effective spaces to develop joint actions that allow the university to know the real impact of its actions in society, as well as the adjustments that must be made to adapt its actions to the social needs that are currently observed (López, 2021).

Methodology

The research was of a quantitative type because it allows analyzing the data to obtain results according to the research objective, and a descriptive non-experimental transectional design was also adopted. The method was based on analyzing the surveys applied to graduate students of the different careers at the Antofagasta center. The final work consisted of tabulating the database in SPSS to be able to perform the multivariate analysis,

creation of tables and graphs, with a reliability calculated by the Cronbach's Alpha coefficient.

Population and sample

The study population was based on statistical information held by the alumni office for the last 3 years, corresponding to 311 graduates at the Antofagasta Liaison Center. Therefore, sample sizes were not determined, nor was the type of sampling used.

2.2.- Data Collection Materials

The data collection technique used was the survey defined by Unap's alumni office and applied to all students, which provides information on the labor market.

2.3.- Data validation

The method proposed here for the validation of experts is the method of individual aggregates since it is a feasible method to apply, efficient and avoids biases due to contact between experts. The method of individual aggregates means that the validation is performed by each expert individually and without contact with the rest of the experts who will validate the instrument (Arquer, 2018).

The following people participated in the validation of the survey.

1. Juan Michea Cortes. Master in Statistics. Lomas Baya Company. Chile
- 2.- Roger Barraza. Expert in labor surveys. General Director. INP. Antofagasta
3. Rolando Soto. Civil Engineer. Former Director of Chile Qualifies. Antofagasta
4. Eduardo Contreras Illanes. Sociologist. Expert in Citizen Security. UN. Chile
5. Cronbach's Alpha method is also used through SPSS v.21 software.

2.4.- Data analysis

In the analysis of the data, multivariate data analysis was applied and specifically in this study, the principal component analysis technique was applied using Spad 5.6 and SPSS v 21 software to determine the variables under study.

3.- Results

3.1.-Employment History

Introduction

The following tables are processed with SPSS v. 21 software.

Table 1

Type of institution

	Frequency	Percentage	Valid percentage	Cumulative percentage
Valid publishes		20.1	20.1	20.1
private	239	76.4	76.4	96.5
mixed		2.9	2.9	99.4
Foundation/NGO		.6	.6	100.0
Total	313	100.0	100.0	

Source: Own elaboration

It can be seen that most of graduates work in the private sector (76.4%), followed by the public administration.

Table 2

Size of the institution

	Frequency	Percentage	Valid percentage	Cumulative percentage
Valid small (1 to 50 workers)		15.7	15.8	15.8
medium (51 to 200 workers)		16.3	16.4	32.2
large (more than 201 workers)	211	67.4	67.8	100.0
Total	311	99.4	100.0	
Lost System		.6		
Total	313	100.0		

Source: Own elaboration

A large percentage of the graduates work in large companies (67.4%).

Table 3

Working day at the institution

	Frequency	Percentage	Valid percentage	Cumulative percentage
Valid hourly		3.8	3.9	3.9
half day		1.9	1.9	5.8

	full day	292	93.3	93.9	99.7
		1	.3	.3	100.0
	Total	311	99.4	100.0	
Lost	System		.6		
	Total	313	100.0		

Source: Own elaboration

Table 4

Hours of work per week in the institution

		Frequency	Percentage	Valid percentage	Cumulative percentage
Valid	less than 11 hours		4.5	4.5	4.5
	from 11 a.m. to 10 p.m.		3.8	3.9	8.4
	from 23 to 44 hours		28.1	28.3	36.7
	more than 44 hours		62.6	63.0	99.7
		1	.3	.3	100.0
	Total	311	99.4	100.0	
Lost	System		.6		
	Total	313	100.0		

Source: Own elaboration

Table 5

Hours of work per week in the institution

		Frequency	Percentage	Valid percentage	Cumulative percentage
Valid	less than 11 hours		4.5	4.5	4.5
	from 11 a.m. to 10 p.m.		3.8	3.9	8.4
	from 23 to 44 hours		28.1	28.3	36.7
	more than 44 hours		62.6	63.0	99.7
		1	.3	.3	100.0

	Total	311	99.4	100.0	
Lost	System		.6		
	Total	313	100.0		

Source: Own elaboration

Table 6

Type of employment in the institution

	Frequency	Percentage	Valid percentage	Cumulative percentage
Valid dependent	297	94.9	95.5	95.5
independent		4.5	4.5	100.0
Total	311	99.4	100.0	
Lost System		.6		
Total	313	100.0		

Source: Own elaboration

Table 7

Type of contract in the institution

	Frequency	Percentage	Valid percentage	Cumulative percentage
Valid fixed/contract	45	14.4	15.1	15.1
indefinite/plant	243	77.6	81.5	96.6
fee		3.2	3.4	100.0
Total	298	95.2	100.0	
Lost System		4.8		
Total	313	100,0		

Source: Own elaboration

Table 8

Type of position in the institution

	Frequency	Percentage	Valid percentage	Cumulative percentage
Valid director		3.5	3.5	3.5
headquarters	82	26.2	26.2	29.7
professional		31.0	31.0	60.7

administrative		22.7	22.7	83.4
technician		16.3	16.3	99.7
assistant	1	.3	.3	100.0
Total	313	100.0	100.0	

Source: Own elaboration

Table 9

Net income in the institution

	Frequency	Percentage	Valid percentage	Cumulative percentage
Valid up to \$250,000		1.0	1.0	1.0
\$250,000 a \$500,000		12.8	12.8	13.7
\$500,001 a \$1,000,000		31.0	31.0	44.7
\$1,000,001 a \$1,500,000		23.0	23.0	67.7
more than \$1,500,001	101	32.3	32.3	100.0
Total	313	100.0	100.0	

Source: Own elaboration

Table 10

Pension system in the institution

	Frequency	Percentage	Valid percentage	Cumulative percentage
Valid AFP	292	93.3	93.9	93.9
CAPRADENA/DIPRECA		5.1	5.1	99.0
NONE		1.0	1.0	100.0
Total	311	99.4	100.0	
Lost System		.6		
Total	313	100.0		

Source: Own elaboration

Table 11.

Health system in the institution

		Frequency	Percentage	Valid percentage	Cumulative percentage
Valid	ISAPRE		71.6	72.0	72.0
	FONASA		22.0	22.2	94.2
	CAPREDENA/DIPRECA		4.8	4.8	99.0
	none		1.0	1.0	100.0
	Total	311	99.4	100.0	
Lost	System		.6		
	Total	313	100.0		

Source: Own elaboration

Table 12

Position area in or at the institution

		Frequency	Percentage	Valid percentage	Cumulative percentage
Valid	address		4.5	4.6	4.6
	administration		21.7	22.5	27.2
	sales		7.7	7.9	35.1
	production	91	29.1	30.1	65.2
	accounting and finance		3.5	3.6	68.9
	communications		2.2	2.3	71.2
	management		16.6	17.2	88.4
	research	5	1.6	1.7	90.1
	education		5.1	5.3	95.4
	health		4.2	4.3	99.7
	another	1	.3	.3	100.0
	Total		96.5	100.0	
Lost	System		3.5		
	Total	313	100.0		

Source: Own elaboration

Table 13

Media that obtained the job

	Frequency	Percentage	Valid percentage	Cumulative percentage

Valid	Unap job vacancies		.6	.7	.7
	external labor exchange		15.7	16.1	16.8
	periodic notice		7.3	7.6	24.3
	friend recommendation		39.6	40.8	65.1
	consulting firms		8.9	9.2	74.3
	by carrying out the internship		4.8	4.9	79.3
	social networks		8.0	8.2	87.5
	JOB FAIR	1	.3	.3	87.8
	another		11.5	11.8	99.7
		1	.3	.3	100.0
	Total		97.1	100.0	
Lost	System		2.9		
	Total	313	100.0		

Source: Own elaboration

Table 14

Employment related to the career I am studying

Employment related to the career I am studying		Frequency	Percentage	Valid percentage	Cumulative percentage
Valid	0	1	.3	.3	.3
	yes	242	77.3	78.1	78.4
	no		21.4	21.6	100.0
	Total	310	99.0	100.0	
Lost	System		1.0		
	Total	313	100.0		

Source: Own elaboration

Table 15

What career I study

		Frequency	Percentage	Valid percentage	Cumulative percentage
Valid	Civil Industrial/Management Eng.		23.3	23.3	23.3
	industrial execution engineer		11.8	11.8	35.1

	Management Control Execution Engineer		8.3	8.3	43.5
	Risk Prevention Engineer		10.9	10.9	54.3
	business administration		10.5	10.5	64.9
	commercial engineering		7.3	7.3	72.2
	logistics engineer		6.7	6.7	78.9
	tec. mines		2.6	2.6	81.5
	business-marketing adm. tech.		6.1	6.1	87.5
	others		12.5	12.5	100.0
	Total	313	100.0	100.0	

Source: Own elaboration

Most of the graduates studied Industrial Civil Engineering with mention in management, being the career with the highest employability, with labor

contract, taxes and within the large industry and in the private sector.

Table 16
Position area in or at the institution

		Indicate the size of this institution			TOTAL
		small (1 to 50 workers)	medium (51 to 200 workers)	large (more than 201 workers)	
		Count	Count	Count	
What type of institution is	publishes				
	private				237
	mixed				
	Foundation/NGO	0	1	1	
TOTAL			211	311	

Source: Own elaboration

The number of graduates corresponds to 311 from the Centro de Vinculación de Antofagasta, during the years 2019-2020.

As shown in Table 17, the largest number of graduates working is found in large companies with 67.84%, and in private companies this percentage is 73.93%.

Table 17

Workday by type of institution and hours worked

How many hours of work per week	What is the working day				Total
	hourly	half day	full day		
less than 11 hours			5		
What type of publishes private					

	institution is						
	Total	5					
from 11 a.m. to 10 p.m.	What type of institution is	publishes private	0	0			
		mixed	0	1	0		1
	Total				5		
from 23 to 44 hours	What type of institution is	publishes private	1	0			
		mixed	0	1			
		mixed	0	0			
	Total		1	1	86		
more than 44 hours	What type of institution is	publishes private	1	0		0	
		mixed	1	1		1	
		mixed	0	0		0	
		Foundation/NGO	0	0		0	
	Total				191	1	
	What type of institution is	private			1		1
	Total				1		1
Total	What type of institution is	publishes private			225	0	237
		mixed	0	1		1	
		mixed	0	0		0	
		Foundation/NGO	0	0		0	
	Total				292	1	311

Source: Own elaboration

The majority of graduates work full time and in private companies 77% of graduates work in the private sector.

Table 18

Type of employment by institution

		What type of institution is				TOTAL
		publishes	private	mixed	Foundation/NGO	
		Count	Count	Count	Count	
	dependent		227			297

Type of employment	independent			0	0	
TOTAL			237			311

Source: Own elaboration

There are 297 graduates working as employees, most of them in private companies.

Table 19
Company size by type of employment

		Indicate the size of this institution			TOTAL
		small (1 to 50 workers)	medium (51 to 200 workers)	large (more than 201 workers)	
		Count	Count	Count	
Type of employment	dependent				297
	independent		0		
TOTAL				211	311

Source: Own elaboration

The largest number of graduates work as employees and in large-scale mining, which corresponds to 95.49%.

Table 20
Company size by type of employment contract

		Indicate the size of this institution			TOTAL
		small (1 to 50 workers)	medium (51 to 200 workers)	large (more than 201 workers)	
		Count	Count	Count	
What is the corresponding type of contract	fixed/contract				45
	indefinite/plant				243
	fee			5	
TOTAL					298

Source: Own elaboration

243 graduates have permanent contracts and work in large companies (174).

Table 21
Type of institution by type of employment contract

	What type of institution is				TOTAL
	publishes	private	mixed	Foundation/NGO	

		Count	Count	Count	Count	
What is the corresponding type of contract	fixed/contract			0	0	45
	indefinite/plant					243
	fee			0	0	
TOTAL			228			298

Source: Own elaboration

The highest percentage of graduates 67.11% work in the private sector and have permanent contracts.

Table 22

Company size by type of position

		What type of institution is				TOTAL
		publishes	private	mixed	Foundation/NGO	
		Count	Count	Count	Count	
what is the position in this organization	director			0	0	
	headquarters			1	1	82
	professional				0	
	administrative				0	
	technician			1	1	
	assistant	1	0	0	0	1
TOTAL			239			313

Source: Own elaboration

Regarding positions in the private sector, 76 (31.79%) are professionals and 72 (30.12%) are managers. Only 20.12% work in the public sector.

Table 23

Type of company by net income

		What type of institution is				TOTAL
		publishes	private	mixed	Foundation/NGO	
		Count	Count	Count	Count	
What is the net income in this job?	up to \$250,000		1	0	0	
	\$250,000 a \$500,000				0	
	\$500,001 a \$1,000,000				0	
	\$1,000,001 a \$1,500,000				1	

	more than \$1,500,001			1	1	101
TOTAL			239			313

Source: Own elaboration

Graduates have a quite considerable salary in the private sector with 36.82% and more than \$ 1,500,001.

Table 24

Company size by type of institution

		Indicate the size of this institution			TOTAL
		small (1 to 50 workers)	medium (51 to 200 workers)	large (more than 201 workers)	
		Count	Count	Count	
What is the net income in this job?	up to \$250,000		0	1	
	\$250,000 a \$500,000				
	\$500,001 a \$1,000,000				
	\$1,000,001 a \$1,500,000				
	more than \$1,500,001				101
TOTAL			211	311	

Source: Own elaboration

Table 23 shows that most of the graduates work in large companies and their remuneration exceeds \$1,500,000.

Table 25

Company size by pension system

		What type of institution is				TOTAL
		publishes	private	mixed	Foundation/NGO	
		Count	Count	Count	Count	
Its forecasting system is	AFP		234			292
	IPS-INP	0	0	0	0	0
	CAPRADENA/DIPRECA		0	0	0	
	NONE	0		0	0	
TOTAL		237			311	

Source: Own elaboration

Graduates who work in the private sector have an AFP pension system. 93% are under the AFP system.

Table 26

Company size by workday

		What type of institution is				TOTAL
		publishes	private	mixed	Foundation/NGO	
		Count	Count	Count	Count	
What is the working day	hourly			0	0	
	half day			1	0	
	full day		225			292
		0	1	0	0	1
TOTAL			237			311

Source: Own elaboration

Most of graduates are full-time (93%).

Table 27

Size of the company by type of position in the institution

		Indicate the size of this institution			TOTAL
		small (1 to 50 workers)	medium (51 to 200 workers)	large (more than 201 workers)	
		Count	Count	Count	
what is the position in this organization	director		1		
	headquarters			58	82
	professional				
	administrative			45	
	technician				
	assistant	0	0	1	1
TOTAL				211	311

Source: Own elaboration

Most of graduates work as professionals (30%), followed by management positions in large companies.

Table 28

Company size by type of health system

	What type of institution is

		publishes	private	mixed	Foundation/NGO
		Count	Count	Count	Count
What type of health coverage do you have	ISAPRE		184		
	FONASA			5	0
	CAPREDENA/DIPRECA		0	0	0
	none	1		0	0
		0	1	0	0

Source: Own elaboration

Private companies take most of the graduates and have an ISAPRE health system.

Table 29

Company size by position area

		What type of institution is				TOTAL
		publishes	private	mixed	Foundation/NGO	
		Count	Count	Count	Count	
In which area of the organization does he/she perform this position?	address			0	0	
	administration		52		0	
	sales			0	0	
	production				0	91
	accounting and finance	1		0	0	
	communications		5	0	0	
	management		42	0	0	52
	research			0	1	5
	education				1	
	health	5		0	0	
another	1	0	0	0	1	
TOTAL			230			

Source: Own elaboration

74 graduates work in the production area, followed by management and belong to the private sector.

MULTIPLE CORRESPONDENCE ANALYSIS

Correspondence analysis is a multivariate factorial method of reducing the dimension of a table of case-variables with qualitative data in order to obtain a reduced number of factors, whose subsequent interpretation will allow a simpler study of the problem

under investigation. Working with **qualitative** variables or **categorized qualitative** variables confers to this factorial test a differential characteristic (Crespo, 2002).

I.- Reliability analysis

The reliability analysis was carried out with the SPSS V.21 program and through the CronBach alpha coefficient allows to verify whether the model is

consistent, based on the average of the correlations between variables. (Quero, 2010).

This indicator allows to know if the instrument used is reliable.

The procedure was performed for all survey variables processed.

Case processing summary

Valid active cases	284
Active cases with missing values ^a	
Complementary cases	0
Total	313
Cases used in analysis	313

a. Values less than or equal to zero have occurred (see warning table).

Iteration history

Iteration number	Variance accounted for		Losses
	Total	Increase	
^a	2.920019	.000009	10.079981

a. The iteration process has stopped because the convergence test value has been reached. The iteration history shows the number of steps that were necessary to reach an optimal solution, therefore, step 21 shows that the increase in variance is no longer significant enough to continue iterating.

Summary of the model

Dimension	Cronbach's alpha	Variance accounted for	
		Total (eigenvalue)	Inertia
1	.740	3.157	.243
	.680	2.683	.206
Total		5.840	.449
Media	.712 ^a	2.920	.225

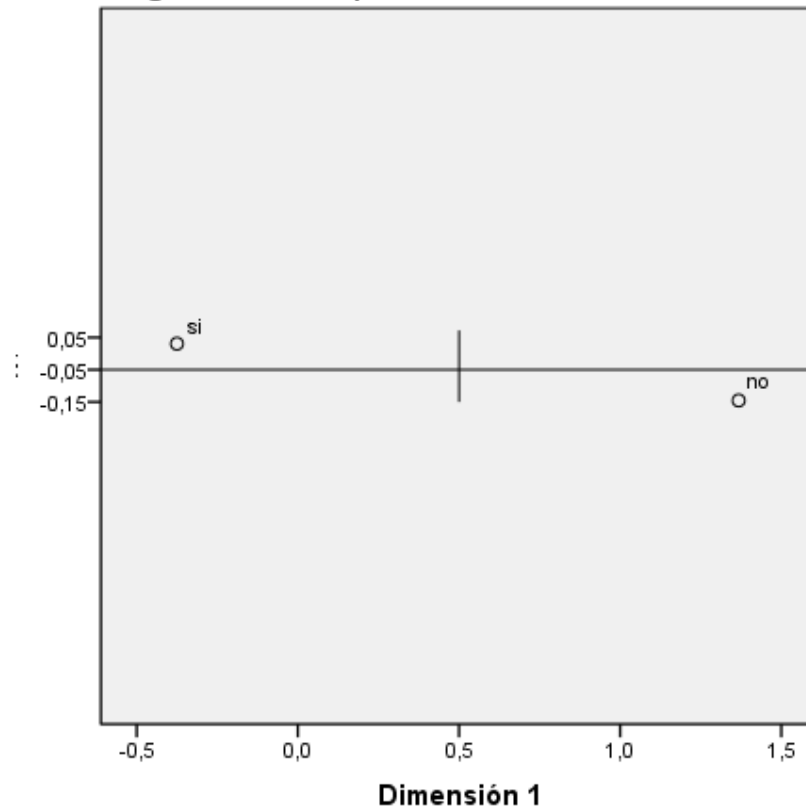
a. Cronbach's mean alpha is based on the mean eigenvalue.

The model summary table shows that two dimensions were created (4 variables), the auto value shows the proportion of information in the model that is explained by each dimension, which allows to analyze each variable and its importance in the study.

The first dimension is more important than the second one, because it explains a higher inertia 0.24, which is to be expected since the dimensions are obtained through a structural analysis.

The statistic for the first dimension is 0.7, which is quite good, and for the second dimension it is a little lower and is 0.68. For the first dimension, it is important to note that this is the query if the career studied is correlated with current employment, as seen in the following table there are no negative correlations and if there were, an inversion of the items is made, since they can be negative items. Finally, there is a fairly acceptable Cronbach's alpha, that is, with a reliability that the questionnaire is consistent.

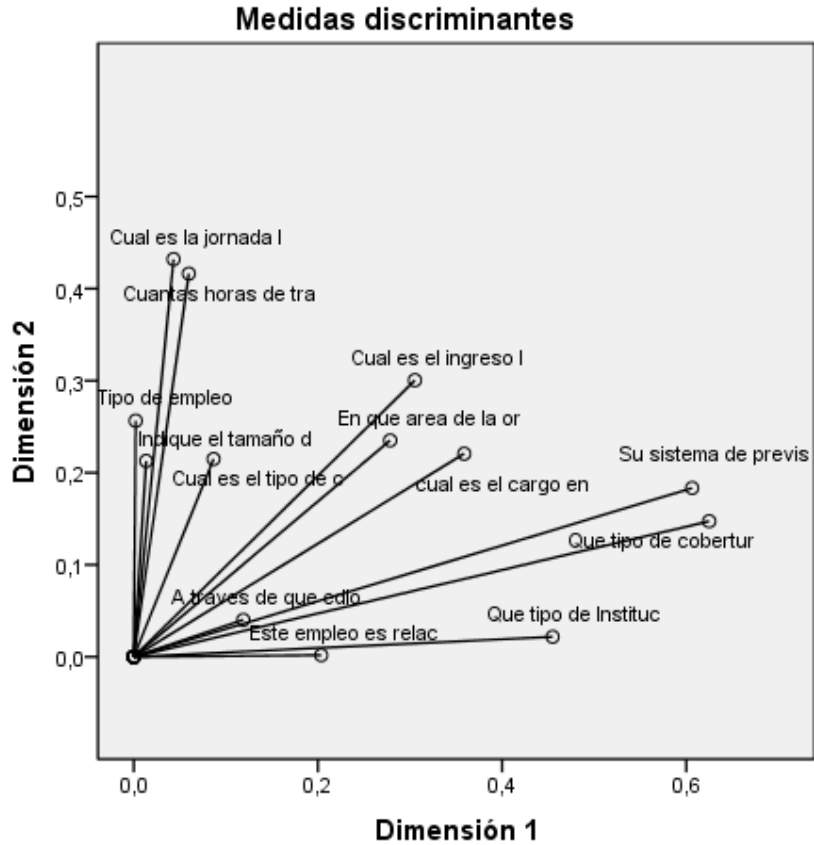
	Dimension		Media
	1		
What type of institution is	.455	.022	.238
Indicate the size of this institution	.013	.213	.113
What is the working day	.043	.432	.238
How many hours of work per week	.060	.416	.238
Type of employment	.002	.256	.129
What is the corresponding type of contract	.087	.215	.151
what is the position in this organization	.359	.221	.290
What is the net income in this job?	.305	.301	.303
Its forecasting system is	.606	.183	.395
What type of health coverage do you have	.625	.147	.386
In which area of the organization does he/she perform this position?	.278	.235	.257
How did you obtain this employment?	.119	.040	.080
This job is related to your career	.204	.002	.103
Total assets	3.157	2.683	2.920

Puntos de categoría: Este empleo es relacionado con su carrera

Normalización de principal de variable.

The dot plots of each category allow a better reading of the behavior of each of the variables, in this case the variable “employment is related to your career” is very

useful information when there are several dots on the graph and it is the main variable in this study.



Normalización de principal de variable.

This graph can be interpreted as follows: the vectors with a smaller angle to each dimension are better “interpreted” by the corresponding factor. Thus, the variable “this job is related to your career” practically lies on dimension one, close to it is “type of institution” and with a greater

distance “pension system”. Close to the second axis is the variable “working hours”. The position in the institution where the employee works is practically across the table, so it is not well discriminated by either of the two components.

Discriminant measures

	Dimension		Media
	1		
This job is related to your career	.666	.000	.333
what is the position in this organization	.688	1.021	.855
Total, active	1.354	1.022	1.188

MULTIVARIATE ANALYSIS WITH SPAD 5.6

The multivariate technique with Spad presents the characteristics and usefulness of the classification analysis technique with criterion variable from a large data set, mainly with categorical variables. This analysis is one of the techniques commonly known as data

mining, which is responsible for analyzing the relationships or associations between all the variables in a database.

The paper describes step by step how to apply this statistical technique with the support of SPAD software -a statistical package used to perform multivariate

analysis- and provides an example of how it is applied. This is a technique from the French school of statistics which, despite being little known, provides a highly interesting classification analysis when working with large amounts of data -something increasingly recurrent in educational research and more typical of the secondary analyses carried out in the field.

SELECTION OF CASES AND VARIABLES

ACTIVE CATEGORICAL VARIABLES

13 VARIABLES 69 ASSOCIATED CATEGORIES

- 1 . What type of Institution (4 CATEGORIES)
- 2 . Indicate the size of this institution (4 CATEGORIES)
- 3 . What is the working day (4 CATEGORIES)
- 4 . How many hours of work per week (4 CATEGORIES)
- 5 . Type of employment (3 CATEGORIES)
- 6 . What is the corresponding type of contract (4 CATEGORIES)
- 7 . What is the position in this organization (6 CATEGORIES)
- 8 . What is the liquid income in this job (5 CATEGORIES)
- 9 . Its forecast system is (5 CATEGORIES)
- 10 . What type of health coverage do you have (5 CATEGORIES)

11 . In which area of the organization do you perform this position (12 CATEGORIES)

12 . Through what means did you obtain this job (10 CATEGORIES)

13 . This job is related to your career (3 CATEGORIES)

CASES

----- NUMBER -----
WEIGHT -----

WEIGHT OF CASES : Weight of objects, uniform equal to 1.

KEPT NITOT = 313 PITOT = 313,000

ACTIVE NIACT = 313 PIACT = 313,000

SUPPLEMENTARY NISUP = 0 PISUP = 0.000

The eigenvalues obtained are transformed to obtain the explained inertia using Benzecri's proposal: take the eigenvalues greater than 1/q and associate the inertia to each eigenvalue.

$$p(\lambda) = \left(\frac{q}{q-1}\right)^2 * \left(\lambda - \frac{1}{q}\right)^2$$

Thus, it turns out that the first 3 factorial axes have already obtained 52%, and can now explain the results of the survey.

$$Q = 38 \quad Q^{-1} = 37 \quad 1/q = 0.026315789$$

Number	EIGENVALUES	INERCIA	% INERCIA	% ACCUMULATED
1	0.2432	0.0496	21.4232	21.4232
	0.2217	0.0403	17.3863	38.8095
	0.1976	0.0309	13.3618	52.1713
	0.1526	0.0168	7.2632	59.4345
5	0.1263	0.0105	4.5529	63.9874
	0.1202	0.0093	4.0143	68.0017
	0.1182	0.0089	3.8451	71.8469
	0.1118	0.0077	3.3281	75.1750
	0.1115	0.0077	3.3048	78.4798
	0.1039	0.0063	2.7414	81.2212

	0.1011	0.0059	2.5471	83.7683
	0.0976	0.0054	2.3143	86.0826
	0.0092	0.0003	0.1331	86.2157
	0.0899	0.0043	1.8413	88.0570
	0.0829	0.0034	1.4582	89.5153
	0.0818	0.0032	1.4021	90.9173
	0.0078	0.0004	0.1555	91.0728
	0.0769	0.0027	1.1654	92.2381
	0.0756	0.0026	1.1062	93.3444
	0.0702	0.0020	0.8771	94.2215
	0.0700	0.0020	0.8691	95.0906
	0.0686	0.0019	0.8143	95.9049
	0.0663	0.0017	0.7281	96.6330
	0.0638	0.0015	0.6399	97.2729
	0.0609	0.0013	0.5447	97.8177
	0.0578	0.0010	0.4515	98.2691
	0.0538	0.0008	0.3440	98.6131
	0.0513	0.0007	0.2843	98.8974
	0.0501	0.0006	0.2576	99.1551
	0.0454	0.0004	0.1659	99.3209
	0.0434	0.0003	0.1329	99.4539
	0.0403	0.0002	0.0891	99.5429
	0.0387	0.0002	0.0698	99.6128
	0.0347	0.0001	0.0320	99.6448
	0.0302	0.0000	0.0069	99.6517
	0.0232	0.0000	0.0044	99.6561
	0.0110	0.0002	0.1068	99.7629
	0.0035	0.0005	0.2371	100.0000

In the first factorial axis, the variables that contribute most to its explanation are :

Variable	Absolute contribution
Type of employment	20.8%
Type of employment contract	20.2%
Type of position in the institution	10.6%

Type of working day	7.1%
---------------------	------

These are variables related to direct employment in the company, while in the case of the second factorial axis, the most influential variables are those related to the current perception of foreigners with respect to Chileans.

Variable	Absolute contribution
Forecast system	20.1%
Health system	19.9%
Position in the institution	13.4%
Type of institution	13.4%

MULTIPLE CORRESPONDENCE ANALYSIS

ELIMINATION OF ACTIVE CATEGORIES WITH SMALL WEIGHTS

THRESHOLD (PCMIN) : 2.00 % WEIGHT: 6.26

BEFORE CLEANING : 13 ACTIVE QUESTIONS 69 ASSOCIATE CATEGORIES

AFTER CLEANING : 12 ACTIVE QUESTIONS 50 ASSOCIATE CATEGORIES

TOTAL WEIGHT OF ACTIVE CASES : 313.00

MARGINAL DISTRIBUTIONS OF ACTIVE QUESTIONS

-----+-----+-----

CATEGORIES | BEFORE CLEANING | AFTER CLEANING

IDENT LABEL | COUNT WEIGHT | COUNT WEIGHT HISTOGRAM OF RELATIVE WEIGHTS,

-----+-----+-----

1 . What type of institution is

TI01 - public | 63 63.00 | 63 63.00 *****

TI02 - private | 239 239.00 | 240 240.00

**

TI03 - mixed | 9 9.00 | 10 10.00 **

TI04 - Foundation/ONG | 2 2.00 |
==RAND.ASSIGN,==

-----+-----+-----

2 . Indicate the size of this institution

TA01 - small (1 to 50 tra | 49 49.00 | 49 49 49.00

TA02 - median(51 to 200 tra | 51 51.00 | 53 53.00

TA03 - large(more than 201 tr | 211 211.00 | 211 211.00

2_ - missing category | 2 2.00 | ==RAND.ASSIGN,==

-----+-----+-----

-----+-----+-----

3 . What is the working day

JO01 - per hours : 12 12.00 | 12.00 | 16 16.00 ****

JO02 - half day | 6 6.00 | ==RAND.ASSIGN,==

JO03 - full time | 293 293.00 | 297 297.00

3_ - missing category | 2 2.00 | ==RAND.ASSIGN,==

-----+-----+-----

-----+-----+-----

4 . How many hours of work do you do per week?

HO01 - less than 11 hours | 14 14.00 | 14 14.00 ***

HO02 - from 11 a.m. to 10 p.m. | 1:00 p.m. | 1:00 p.m.

HO03 - from 23 to 44 hours | 88 88.00 | 88 88.00

4_ - missing category | 198 198.00 | 198 198.00

-----+-----+-----

-----+-----+-----

5 . Type of employment

TI01 - dependent : 297 297.00 : 298 298.00

TI02 - independent : 14.00 | 14.00 | 15.15 15.00 ***

5_ - missing category | 2 2.00 | ==RAND.ASSIGN.==

-----+-----+-----

6 . What is the corresponding type of contract

TI01 - fixed/contract | 45 45.00 | 45 45.00 *****

TI02 - indefinite/plant | 243 243.00 | 243 243.00

**

TI03 - fee : 10 10.00 | 10 10.00 ** 10 10.00 ** 10 10.00
** 10.00 ** 10.00 ** 10.00 ** 10.00 ** 10.00

6_ - missing category | 15 15.00 | 15 15.00 ***

-----+-----+-----

7 . what is the position in this organization?

CA01 - director | 11 11.00 | 11 11.00 ***

CA02 - headquarters | 82 82.00 | 82 82.00

CA03 - professional | 97 97.00 | 97 97.00

CA04 - administrative | 71 71.00 | 71 71.00

CA05 - technician | 51 51.00 | 52 52.00 *****

CA06 - auxiliary | 1 1.00 | ==RAND.ASSIGN.==

-----+-----+-----

8 . What is the net income in this job?

IN01 - up to \$250,000 | 3 3.00 | ==RAND.ASSIGN.==

IN02 - \$250,000 to \$500,000 | 40 40.00 | 41 41.00

IN03 - \$500.001 to \$1,000.00 | 97 97.00 | 97 97.00

IN04 - \$1,000.001 to \$1,500. 72 72.00 | 73 73.00

IN05 - over \$1,500,001 | 101 101.00 | 102 102.00

-----+-----+-----

9 . Its forecasting system is

PR01 - AFP | 292 292.00 | 295 295.00

PR02 - IPS-INP | 0 0.00 | 0.00 | 0.00 | 0.00

PR03 - CAPRADENA/DIPRECA | 16 16.00 | 18 18.00

PR04 - NONE | 3 3.00 | ==RAND.ASSIGN.==

9_ - missing category | 2 2.00 | ==RAND.ASSIGN.==

-----+-----+-----

10 . What type of health coverage do you have

IS01 - ISAPRE | 224 224.00 | 226 226.00

IS02 - FONASA | 69 69.00 | 70 70.00 *****

IS03 - CAPREDENA/DIPRECA | 15 15.00 | 17 17.00

IS04 - none | 3 3.00 | ==RAND.ASSIGN.==

10_ - missing category | 2 2.00 | ==RAND.ASSIGN.==

-----+-----+-----

-----+-----+-----

CATEGORIES | BEFORE CLEANING | AFTER
CLEANING

IDENT LABEL | COUNT WEIGHT | COUNT
WEIGHT HISTOGRAM OF RELATIVE WEIGHTS,

-----+-----+-----

11 . In what area of the organization do you perform
this position?

AR01 - address | 17.00 17.00 | 18.00 18.00 *****

AR02 - administration | 68 68.00 | 68 68.00

AR03 - sales | 24 24 24.00 | 24 24 24.00 *****

AR04 - production | 91 91.00 | 93 93.00

AR05 - accounting and finance | 11 11.00 | 11 11.00
**

AR06 - communications | 7 7.00 | 7 7.00 ** 7 7.00 ** 7
7.00 ** 7.00 ** 7.00 ** 7.00 ** 7.00 ** 7.00

AR07 - management | 52 52.00 | 52 52.00 *****

AR08 - research | 5 5.00 | ==RAND.ASSIGN.==

AR09 - education | 16 16.00 | 17 17.00 ****
 AR10 - health | 11.00 a.m. | 12.00 noon ***
 AR11 - other 0 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00
 11_ - missing category | 11 11.00 | 11 11.00 ***
 -----+-----+-----+-----+
 -----+-----+-----+-----+

-----+-----+-----+-----+
 TA01 | 4 43 2 | 49 0 0 |
 TA02 | 9 41 3 | 0 53 0 | 0 53 0 |
 TA03 | 50 156 5 | 0 0 211 |
 -----+-----+-----+-----+
 JO01 | 5 11 0 | 5 2 9 | 16 0 | 16 0 |

12 . By what means did you obtain this employment?

ME01 - labor exchange One | 2 2.00 |
 ==RAND.ASSIGN.==
 ME02 - labor exchange ext | 49 49.00 | 49 49.00

 ME03 - periodical notice | 23.23.00 | 23 23.23.00 *****
 ME04 - ami's recommendation | 124 124.00 | 124
 124.00 *****
 ME05 - consultancy firms | 29 29.00 | 29 29.00 *****
 ME06 - when doing the pract | 15 15.00 | 16 16.00 ****
 ME07 - social networks | 25 25.00 | 26 26.00 *****
 ME08 - labor fair | 1 1.00 | ==RAND.ASSIGN.==
 ME09 - other | 36 36.00 | 36 36.00 *****
 12_ - missing category | 9 9.00 | 10 10.00 **
 -----+-----+-----+-----+
 -----+-----+-----+-----+

-----+-----+-----+-----+
 JO03 | 58 229 10 | 44 51 202 | 0 297 | 0 297 |
 -----+-----+-----+-----+
 HO01 | 6 8 0 0 | 4 2 8 | 5 9 | 14 0 0 0 0 |
 HO02 | 4 8 1 | 4 2 7 | 5 8 | 0 13 0 0 0 |
 HO03 | 21 61 6 | 13 17 58 | 2 86 | 0 0 88 0 | 0 0
 4_ | 32 163 3 | 28 32 138 | 4 194 | 0 0 0 198 |
 -----+-----+-----+-----+
 -----+-----+-----+-----+

13 . This job is related to your career =====
DROPPED =====

Mod1 - Mod1 | 0 0.00 | 0.00 | 0.00 | 0.00 | 0.00
 Mod2 - Mod2 | 0 0.00 | 0.00 | 0.00 | 0.00 | 0.00
 13_ - missing category | 313 313.00 |
 ==RAND.ASSIGN.==
 -----+-----+-----+-----+
 -----+-----+-----+-----+

-----+-----+-----+-----+
 -----+-----+-----+-----+
 TI01 | 59 229 10 | 39 52 207 | 12 286 | 11 11 85 191 |
 298 0 | 0 |
 TI02 | 4 11 0 | 10 1 4 | 4 11 | 3 2 3 7 | 0 15 |
 -----+-----+-----+-----+
 -----+-----+-----+-----+

MULTIPLE CORRESPONDENCE TABLE

| TI01 TI02 TI03 | TA01 TA02 TA03 | JO01 JO03 |
 HO01 HO02 HO03 4_ | TI01 TI02 | TI01 TI02 TI03 6_
 | TI01 TI02 TI03 6_ | TI01 TI02 TI03 6_ | TI01 TI02
 TI03
 -----+-----+-----+-----+
 -----+-----+-----+-----+
 TI01 | 63 0 0 |
 TI02 0 240 0 | 0 240 0 |
 TI03 | 0 0 10 |

-----+-----+-----+-----+
 -----+-----+-----+-----+
 CA01 | 2 9 0 | 7 1 3 | 1 1 10 | 1 1 3 6 | 5 6 | 0 5 0 6 | 0 5
 0 6 |
 CA02 | 8 73 1 | 11 13 58 | 1 81 | 1 1 24 56 | 80 2 | 5 75
 0 2 | |
 CA03 | 17 76 4 | 16 14 67 | 8 89 | 5 6 21 65 | 90 7 | 12
 72 6 7 | 7 |
 CA04 | 17 51 3 | 7 19 45 | 2 69 | 5 3 26 37 | 71 0 | 17 52
 2 0 | |
 CA05 | 19 31 2 | 8 6 38 | 4 48 | 2 2 14 34 | 52 0 | 11 39
 2 0 | |
 -----+-----+-----+-----+
 -----+-----+-----+-----+

IN02 | 11 27 3 | 10 13 18 | 6 35 | 5 4 17 15 | 37 4 | 12 21
4 4 | 4 | 4

IN03 | 26 69 2 | 15 14 68 | 4 93 | 5 5 23 64 | 94 3 | 20 73
2 2 ||

IN04 | 14 55 4 | 10 15 48 | 4 69 | 3 1 18 51 | 69 4 | 7 58
3 5 ||

IN05 | 12 89 1 | 14 11 77 | 2 100 | 1 3 30 68 | 98 4 | 6 91
1 4 |

-----+-----+-----+-----
-----+-----+-----+-----

PR01 | 47 238 10 | 49 51 195 | 14 281 | 13 12 87 183 |
280 15 | 42 229 10 14 |

PR03 | 16 2 0 | 0 2 16 | 2 16 | 2 16 | 1 1 1 1 15 | 18 0 | 3
14 0 1 | 1 1 |

-----+-----+-----+-----
-----+-----+-----+-----

IS01 | 35 186 5 | 31 33 162 | 11 215 | 11 8 65 142 | 216
10 | 32 177 8 9 |

IS02 | 13 52 5 | 18 19 33 | 4 66 | 2 4 21 43 | 66 4 | 10 53
2 5 ||

IS03 | 15 2 0 | 0 1 16 | 1 16 | 1 1 1 2 13 | 16 1 | 16 1 | 3
13 0 1 | 1 1 |

-----+-----+-----+-----
-----+-----+-----+-----

AR01 | 5 13 0 | 2 1 15 | 0 18 | 1 0 5 12 | 16 2 | 1 15 0 2 |

AR02 | 14 52 2 | 12 17 39 | 0 68 | 3 3 19 43 | 67 1 | 7 57
3 1 | 1

AR03 | 3 21 0 | 6 1 17 | 3 21 | 3 2 9 10 | 22 2 | 2 20 0 2 |
2 20 0 2 |

AR04 | 15 75 3 | 9 16 68 | 3 90 | 1 1 1 20 71 | 92 1 | 12
78 2 1 | 1

AR05 | 1 10 0 | 3 3 5 | 0 11 | 0 1 1 9 | 9 2 | 2 7 0 2 | 0 1 1
9 | 9 2 | 2 7 0 2 |

AR06 | 2 5 0 | 3 0 4 | 0 7 | 1 0 3 3 | 6 1 | 0 6 0 1 | 0 6 0 1
|

AR07 | 10 42 0 | 10 9 33 | 3 49 | 2 1 19 30 | 50 2 | 12 37
1 2 ||

AR09 | 7 5 5 | 2 3 12 | 4 13 | 2 3 9 3 | 15 2 | 4 10 2 1 | 1 |

AR10 | 4 8 0 | 1 0 11 | 1 11 | 0 1 3 8 | 12 0 | 4 6 2 0 | 0 1
3 8 | 12 0 | 4 6 2 0 | 0

11_ | 2 9 0 | 1 3 7 | 2 9 | 1 1 0 9 | 9 2 | 1 7 0 3 |

-----+-----+-----+-----
-----+-----+-----+-----

ME02 | 11 38 0 | 4 10 35 | 3 46 | 1 2 14 32 | 47 2 | 9 38
0 2 | 2 |

ME03 | 8 13 2 | 4 8 11 | 1 22 | 0 1 11 11 | 23 0 | 6 16 1 0
||

ME04 | 22 97 5 | 24 20 80 | 7 117 | 5 6 42 71 | 123 1 |
15 101 7 1 | 1 |

ME05 | 0 29 0 | 4 4 21 | 1 28 | 1 1 7 20 | 26 3 | 2 24 1 2 |

ME06 | 1 14 1 | 3 5 8 | 1 15 | 1 0 5 10 | 15 1 | 4 10 1 1 |
1 15 | 1 0 5 10 | 15 1 | 4 10 1 | 1 1

ME07 | 4 22 0 | 1 2 23 | 1 25 | 1 0 5 20 | 25 1 | 5 20 0 1 |
1

ME09 | 12 22 2 | 8 2 26 | 0 36 | 3 2 3 28 | 31 5 | 3 28 0 5
|

12_ | 5 5 0 | 1 2 7 | 2 8 | 2 1 1 6 | 8 2 | 1 6 0 3 |

-----+-----+-----+-----
-----+-----+-----+-----

| TI01 TI02 TI03 | TA01 TA02 TA03 | JO01 JO03 |
HO01 HO02 HO03 4_ | TI01 TI02 | TI01 TI02 TI03 6_
| TI01 TI02 TI03 6_ | TI01 TI02 TI03 6_ | TI01 TI02
TI03

| CA01 CA02 CA02 CA03 CA03 CA04 CA04
CA05 | IN02 IN03 IN04 IN05 | PR01 PR03 | IS01 IS02
IS03 | IS01 IS02 IS03 |

-----+-----+-----+-----
-----+-----+-----+-----

CA01 | 11 0 0 0 0 |

CA02 | 0 82 0 0 0 |

CA03 | 0 0 0 97 0 |

CA04 | 0 0 0 0 71 0 |

CA05 | 0 0 0 0 0 52 |

-----+-----+-----+-----
-----+-----+-----+-----

IN02 | 1 2 9 20 9 | 41 0 0 0 0 |

IN03 | 2 5 24 36 30 | 0 97 0 0 | 0 97 0 0 |

IN04 | 1 15 36 12 9 | 0 0 73 0 | 0 0

IN05 | 7 60 28 3 4 | 0 0 0 0 102 |

-----+-----+-----+-----
-----+-----+-----+-----

| CA01 CA02 CA02 CA03 CA03 CA04 CA04
CA05 | IN02 IN03 IN04 IN05 | PR01 PR03 | IS01 IS02
IS03 | IS01 IS02 IS03 |

| CA01 CA02 CA02 CA03 CA03 CA04 CA04
CA05 | IN02 IN03 IN04 IN05 | PR01 PR03 | IS01 IS02
IS03 | IS01 IS02 IS03 |

-----+-----+-----+-----
-----+-----+-----+-----

```

PR01 | 10 82 91 69 43 | 41 84 71 99 | 295 0 |
PR03 | 1 0 6 2 9 | 0 13 2 3 | 0 18 | 0 18 |
-----+-----+-----+-----+
--+-----+
IS01 | 9 73 74 74 39 31 | 23 58 52 93 | 224 2 | 226 0 0 |
IS02 | 2 8 17 30 13 | 18 27 18 7 | 69 1 | 0 70 0 |
IS03 | 0 1 6 2 8 | 0 12 3 2 | 2 15 | 0 0 17 | 0 0 17 |
-----+-----+-----+-----+
--+-----+
AR01 | 3 9 4 0 2 | 1 4 1 12 | 15 3 | 14 1 3 |
AR02 | 1 16 14 30 7 | 10 25 13 20 | 65 3 | 48 17 3 |
AR03 | 1 7 8 6 2 | 2 5 10 7 | 24 0 | 19 5 0 0 |
AR04 | 1 29 26 12 25 | 9 27 20 37 | 89 4 | 69 19 5 |
AR05 | 1 0 3 7 0 | 2 5 3 1 | 10 1 | 8 2 1 | 8 2 1 |
AR06 | 0 1 2 1 3 | 3 3 3 1 0 | 5 2 | 2 2 4 1 | 1 |
AR07 | 3 12 19 11 7 | 6 15 15 15 16 | 51 1 | 39 13 0 |
AR09 | 0 3 12 1 1 | 3 8 3 3 | 16 1 | 13 3 1 | 1 |
AR10 | 0 1 6 2 3 | 4 1 4 3 | 10 2 | 7 3 2 2 |
11_ | 1 4 3 1 2 | 1 4 3 3 | 10 1 | 7 3 1 |
-----+-----+-----+-----+
--+-----+
ME02 | 0 12 14 15 8 | 7 17 9 16 | 46 3 | 37 9 3 | |
ME03 | 0 7 4 6 6 6 | 6 5 6 6 6 | 22 1 | 15 7 1 1 |
ME04 | 1 35 43 30 15 | 17 34 32 41 | 122 2 | 89 32 3 |
ME05 | 3 10 11 1 4 | 0 9 5 15 | 28 1 | 26 3 0 | 0 |
ME06 | 0 1 8 4 3 | 3 5 6 2 | 16 0 | 13 3 0 0 |
ME07 | 1 8 4 7 6 | 6 8 3 9 | 25 1 | 19 6 1 | 1 |
ME09 | 5 6 8 8 8 9 | 2 15 8 11 | 29 7 | 21 9 6 |
12_ | 1 3 5 0 1 | 0 4 4 2 | 7 3 | 6 1 3 |
-----+-----+-----+-----+
--+-----+
| CA01 CA02 CA02 CA03 CA03 CA04 CA04
CA05 | IN02 IN03 IN04 IN05 | PR01 PR03 | IS01 IS02
IS03 | IS01 IS02 IS03 |
| AR01 AR02 AR02 AR03 AR04 AR05 AR06
AR06 AR07 AR09 AR10 11_ | ME02 ME03 ME04
ME05 ME06 ME06 ME07 ME09 12_ | ME02 ME03
ME04 ME05 ME06 ME07 ME09 12_ |
-----+-----+-----+-----+
--+-----+

```

```

AR01 | 18 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
AR02 | 0 68 0 0 0 0 0 0 0 0 0 0 0 0 0 |
AR03 | 0 0 0 24 0 0 0 0 0 0 0 0 0 0 0 |
AR04 | 0 0 0 0 93 0 0 0 0 0 0 0 0 0 0 |
AR05 | 0 0 0 0 0 0 11 0 0 0 0 0 0 0 0 |
AR06 | 0 0 0 0 0 0 0 0 7 0 0 0 0 0 0 0 |
AR07 | 0 0 0 0 0 0 0 0 0 52 0 0 0 0 0 0 |
AR09 | 0 0 0 0 0 0 0 0 0 17 0 0 0 0 0 |
AR10 | 0 0 0 0 0 0 0 0 0 0 12 0 0 0 0 |
11_ | 0 0 0 0 0 0 0 0 0 11 |
-----+-----+-----+-----+
-----+-----+
ME02 | 2 10 6 13 4 1 1 7 3 2 1 | 49 0 0 0 0 0 0 0 0 0 0 |
0 |
ME03 | 0 8 0 4 0 1 8 2 0 0 0 | 0 23 0 0 0 0 0 0 0 0 0 0 |
|
ME04 | 10 31 7 35 2 0 20 10 6 3 | 0 0 0 124 0 0 0 0 0 0 |
0 0 0 0 |
ME05 | 2 4 4 4 12 1 0 4 1 0 4 1 0 1 | 0 0 0 0 29 0 0 0 0 |
0 0 0 |
ME06 | 0 3 1 4 1 1 0 5 1 1 0 | 0 0 0 0 0 16 0 0 0 0 0 0 |
|
ME07 | 1 3 2 11 1 1 1 3 0 2 2 2 | 0 0 0 0 0 0 0 0 26 0 0 |
0 0 |
ME09 | 2 8 4 11 2 4 4 0 1 0 | 0 0 0 0 0 0 0 0 0 36 0 |
0 |
12_ | 1 1 0 3 0 0 1 0 0 4 | 0 0 0 0 0 0 0 10 |
-----+-----+-----+-----+
-----+-----+
| AR01 AR02 AR02 AR03 AR04 AR05 AR06
AR06 AR07 AR09 AR10 11_ | ME02 ME03 ME04
ME05 ME06 ME06 ME07 ME09 12_ | ME02 ME03
ME04 ME05 ME06 ME07 ME09 12_ |
EIGENVALUES
COMPUTATIONS PRECISION SUMMARY :
TRACE BEFORE DIAGONALIZATION... 3.1667
SUM OF EIGENVALUES.....
3.1667
HISTOGRAM OF THE FIRST 38 EIGENVALUES
-----+-----+-----+-----+-----+
-----+-----+

```

| NUMBER | EIGENVALUE | PERCENTAGE |
CUMULATED |

|||||

+-----+-----+-----+-----+-----

--+

| 1 | 0.2432 | 7.68 | 7.68 |

| 2 | 0.2217 | 7.00 | 14.68 |

| 3 | 0.1976 | 6.24 | 20.92 |

| 4 | 0.1526 | 4.82 | 25.74 |

| 5 | 0.1263 | 3.99 | 29.73 |

| 6 | 0.1202 | 3.80 | 33.52 |

| 7 | 0.1182 | 3.73 | 37.26 |

| 8 | 0.1118 | 3.53 | 40.79 |

| 9 | 0.1115 | 3.52 | 44.31 |

| 10 | 0.1039 | 3.28 | 47.59 |

| 11 | 0.1011 | 3.19 | 50.78 |

| 12 | 0.0976 | 3.08 | 53.87 |

| 13 | 0.0922 | 2.91 | 56.78 |

| 14 | 0.0899 | 2.84 | 59.62 |

| 15 | 0.0829 | 2.62 | 62.23 |

| 16 | 0.0818 | 2.58 | 64.82 |

| 17 | 0.0784 | 2.48 | 67.29 |

| 18 | 0.0769 | 2.43 | 69.72 |

| 19 | 0.0756 | 2.39 | 72.11 |

| 20 | 0.0702 | 2.22 | 74.33 |

| 21 | 0.0700 | 2.21 | 76.54 |

| 22 | 0.0686 | 2.17 | 78.70 | *****

| 23 | 0.0663 | 2.09 | 80.80 | *****

| 24 | 0.0638 | 2.02 | 82.81 | *****

| 25 | 0.0609 | 1.92 | 84.74 | *****

| 26 | 0.0578 | 1.82 | 86.56 | *****

| 27 | 0.0538 | 1.70 | 88.26 | *****

| 28 | 0.0513 | 1.62 | 89.88 | *****

| 29 | 0.0501 | 1.58 | 91.46 | *****

| 30 | 0.0454 | 1.43 | 92.90 | *****

| 31 | 0.0434 | 1.37 | 94.27 | *****

| 32 | 0.0403 | 1.27 | 95.54 | *****

| 33 | 0.0387 | 1.22 | 96.76 | *****

| 34 | 0.0347 | 1.10 | 97.86 | *****

| 35 | 0.0302 | 0.95 | 98.81 | *****

| 36 | 0.0232 | 0.73 | 99.54 | *****

| 37 | 0.0110 | 0.35 | 99.89 | *****

| 38 | 0.0035 | 0.11 | 100.00 | **

+-----+-----+-----+-----+-----

--+

CONCLUSIONS

1.-Unap graduates are able to work in different areas of companies, especially in the production area and in private companies.

2.- Most of the graduates are working, highlighting the high employability of their careers, especially the career of Industrial Civil Engineering who are trained to work in any area of the industry, its training plan is highly valued by its graduates.

3.- UNAP graduates are placed in an important way in the labor market of different sizes because they have the potential to make a great contribution in all areas of large companies.

4.- Graduates of the Antofagasta linkage center fully satisfies the labor market, thanks to the academic training

provided, in addition to having the competencies and skills required in today's labor market.

5.- The careers taught at the Antofagasta center have a high employability and have a strong impact on the regional labor market, which indicates that the academic training plans are in line with the needs of the labor market.

Comparing the professional profiles of the university with other regional university centers, the differentiation in the study schedules and the cost of tuition can be highlighted, which is below the market, being this a great strength felt by the graduates themselves, considering that all graduates work in different industrial areas in the region.

7.- In this study, the careers taught in the center of Antofagasta are highly regarded by graduates.

8.- Continuing education programs are highly valued by graduates, since they allow them to study and work at the same time. The class schedule is highly valued in their studies.

9.- This impact study takes into account the graduates of the different careers in the year 2020.

RECOMMENDATIONS

1. Since this is a local study, it is necessary to incorporate other variables and modifications in the collection instruments, in order to have a better vision of what is happening with graduates and that could serve as feedback for quality and accreditation processes.

2.- For future studies, a greater participation of graduates in the provision of information should be considered, which will allow for an expanded and improved database.

3.- A serious recommendation would be to strengthen the sense of belonging, so from the first years, to give them feedback and make them participate in all the plans and linkage of the university with the social organization of the region.

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