devstat

Statistical services for the

Development of a Policy Coherence for Development Index

Methodology for the development of the PCDI

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INTRODUCTION

This document presents the description of the methodology used to construct the Policy Coherence for Development Index (PCDI), as well as the results and its classification. The document is completed by the following annexes:

- Annex 1. Metadata of the variables that compose the PCDI together with the links to the data sources;
- Annex 2. Statistical analysis implemented for the development of the index.

RESULTS OF THE PCDI

COUNTRY	GROUPS	ICDP 0-100	INDEX ECONOMIC COMPONENT NORMALIZED (after weighting) 0-100	INDEX SOCIAL COMPONENT NORMALIZED (after weighting) 0-100	INDEX GLOBAL COMPONENT NORMALIZED (after weighting) 0-100	INDEX ENVIRONMENTAL COMPONENT NORMALIZED (after weighting) 0-100	INDEX INDUSTRY AND INFRASTRUCTURES COMPONENT NORMALIZED (after weighting) 0-100
Denmark	1	**89,60**	91,17	95,09	93,67	92,42	75,64
Sweden	1	**84,89**	86,33	98,42	93,60	80,80	65,33
Norway	1	**82,63**	99,51	99,27	89,73	72,38	52,28
Australia	1	**80,80**	69,62	94,79	89,11	64,39	86,10
Portugal	1	**80,43**	72,10	89,80	84,64	86,50	69,09
United Kingdom	1	**79,77**	52,95	93,71	90,04	94,54	67,62
Iceland	1	**79,65**	85,64	100,00	88,98	66,46	57,16
Italy	1	**79,34**	83,64	94,60	83,48	79,52	55,46
France	1	**78,26**	81,22	90,54	90,87	86,16	42,53
Latvia	4	**77,53**	78,12	91,00	80,02	89,72	48,81
Finland	1	**77,04**	87,47	95,48	90,18	60,91	51,17
Poland	1	**76,74**	85,74	95,08	83,88	75,49	43,50
Czech Republic	1	**76,72**	100,00	91,12	87,46	58,13	46,87
Greece	1	**76,61**	76,28	87,75	66,82	87,28	64,91
Lithuania	4	**75,98**	90,54	93,01	78,07	88,61	29,67
Argentina	3	**75,87**	59,56	85,69	100,00	69,97	64,15
Japan	1	**75,62**	69,22	80,76	63,49	69,99	94,64
Spain	1	**75,44**	67,94	80,06	96,72	75,45	57,02
Canada	1	**75,43**	66,97	90,90	93,64	63,11	62,55
Germany	1	**75,33**	60,84	87,45	91,74	88,12	48,51
Slovakia	1	**75,24**	94,03	92,07	82,25	73,77	34,09
Cyprus	4	**74,77**	59,63	98,14	74,57	93,29	48,23
Uruguay	3	**74,62**	52,67	87,80	89,34	67,76	75,55
Netherlands	1	**74,22**	82,44	90,09	92,03	59,48	47,05
Slovenia	1	**73,99**	87,05	89,94	81,65	71,03	40,27
New Zealand	1	**73,74**	62,70	91,90	95,31	42,96	75,84
Belgium	1	**73,72**	84,11	92,81	98,72	52,54	40,42
Georgia	4	**73,69**	51,71	87,89	71,99	100,00	56,88
Mexico	1	**73,47**	53,40	68,51	94,95	74,45	76,02
Republic of Moldova	4	**73,07**	63,33	83,54	81,79	88,91	47,77
Bulgaria	4	**72,91**	64,25	84,12	81,90	86,10	48,17
Croatia	4	**72,77**	68,64	94,20	83,90	77,10	40,02
Malta	6	**72,72**	75,57	86,60	81,38	74,18	45,88

COUNTRY	GROUPS	ICDP 0-100	INDEX ECONOMIC COMPONENT NORMALIZED (after weighting) 0-100	INDEX SOCIAL COMPONENT NORMALIZED (after weighting) 0-100	INDEX GLOBAL COMPONENT NORMALIZED (after weighting) 0-100	INDEX ENVIRONMENTAL COMPONENT NORMALIZED (after weighting) 0-100	INDEX INDUSTRY AND INFRASTRUCTURES COMPONENT NORMALIZED (after weighting) 0-100
Brazil	1	**72,56**	49,78	77,96	89,91	73,78	71,34
Israel	1	**72,43**	69,33	88,29	27,87	79,65	97,01
Romania	4	**72,00**	69,01	78,13	77,72	97,54	37,63
Ecuador	3	**71,76**	61,26	77,03	84,59	67,83	68,12
Albania	4	**71,46**	47,54	69,41	83,87	99,41	57,07
Cuba	3	**71,33**	48,39	87,78	55,95	89,27	75,26
Hungary	1	**71,27**	58,61	91,74	87,88	82,57	35,54
Serbia	4	**70,27**	57,90	82,36	71,54	88,21	51,32
Bosnia and Herzegovina	4	**69,94**	69,49	82,44	88,08	40,83	68,85
Republic of Korea	1	**69,92**	38,87	80,64	65,47	64,64	100,00
Tunisia	6	**68,78**	49,85	72,23	56,02	96,99	68,81
Kyrgyzstan	4	**68,72**	56,88	83,71	61,75	79,94	61,32
Chile	1	**68,48**	33,59	81,88	84,83	76,87	65,23
Estonia	1	**68,42**	85,35	95,90	71,92	79,17	9,74
Macedonia, FYR	4	**68,24**	51,07	83,94	82,34	64,29	59,55
Russian Federation	4	**68,11**	56,75	84,72	53,35	90,96	54,76
Ukraine	4	**67,52**	54,77	89,66	68,50	77,66	47,00
Turkey	1	**67,38**	49,62	63,52	62,75	84,56	76,42
Costa Rica	3	**67,24**	35,40	75,91	90,58	63,17	71,15
Ireland	1	**67,20**	54,65	89,75	87,52	70,06	34,04
Belarus	4	**67,20**	62,73	92,52	52,51	68,26	59,96
South Africa	1	**67,11**	46,04	67,29	88,14	70,83	63,27
Algeria	6	**66,97**	65,28	68,24	45,15	82,51	73,68
Venezuela	3	**66,95**	49,79	79,22	80,38	62,33	63,04
Switzerland	1	**66,84**	15,00	89,72	87,81	83,90	57,76
Mauritius	5	**66,64**	29,55	78,88	74,98	71,94	77,87
Luxembourg	1	**66,63**	41,08	89,15	97,83	51,82	53,27
Tajikistan	4	**66,39**	49,37	67,89	75,87	83,33	55,52
Azerbaijan	4	**66,04**	58,89	70,88	56,55	91,79	52,08
Honduras	3	**65,98**	48,26	57,98	84,88	62,02	76,73
Panama	3	**65,21**	38,68	73,14	87,31	62,67	64,24
United States of America	1	**64,72**	47,18	87,28	59,41	55,09	74,65
Namibia	5	**64,58**	74,26	54,17	59,94	96,26	38,25
Austria	1	**64,22**	71,66	91,18	88,64	54,43	15,20
Philippines	2	**63,64**	41,62	63,18	80,65	59,74	73,00
China	1	**63,40**	30,71	77,37	59,14	79,58	70,22
Peru	3	**62,44**	41,71	66,88	83,09	61,80	58,73
Paraguay	3	**62,24**	46,46	64,38	83,87	47,53	68,96
Dominican Republic	3	**62,21**	32,09	65,87	77,36	70,29	65,44
Sri Lanka	2	**62,16**	35,04	68,79	46,70	73,00	87,24
Armenia	4	**61,83**	25,04	86,14	45,40	77,93	74,63
Kazakhstan	4	**61,79**	35,21	86,34	67,92	63,20	56,27
Bolivia	3	**61,63**	63,41	49,37	81,17	63,23	50,95
Jamaica	3	**61,61**	42,90	77,83	64,42	62,05	60,83
El Salvador	3	**61,46**	38,97	55,63	75,92	65,03	71,73
India	1	**60,79**	46,23	53,02	51,51	71,15	82,04
Thailand	2	**60,65**	38,01	63,10	50,27	65,24	86,63

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Kuwait	6	**60,50**	89,81	84,94	33,63	20,76	73,37
VietNam	2	**59,74**	38,54	56,90	56,58	59,42	87,24
Guatemala	3	**59,67**	30,82	52,69	77,04	68,42	69,38
Montenegro	4	**59,16**	65,90	86,88	53,81	56,30	32,93
Colombia	3	**58,94**	49,43	61,10	73,13	45,52	65,50
Jordan	6	**58,89**	42,64	74,43	35,03	67,76	74,59
Egypt	6	**58,57**	48,35	47,06	31,17	93,29	73,02
Nicaragua	3	**58,03**	45,88	52,95	78,32	53,36	59,64
Mongolia	2	**57,86**	43,70	76,47	78,42	54,02	36,66
Bangladesh	2	**57,18**	36,43	39,13	64,58	81,36	64,40
Iran	6	**56,74**	43,57	63,48	32,03	69,28	75,33
Morocco	6	**55,39**	43,58	49,35	45,57	87,35	51,07
Ghana	5	**55,27**	45,10	30,17	78,07	58,80	64,18
Nepal	2	**54,62**	42,12	51,56	51,12	53,00	75,30
Saudi Arabia	6	**54,14**	67,50	74,73	14,51	54,43	59,55
Trinidad and Tobago	3	**54,09**	57,96	74,12	69,74	0,58	68,05
Lesotho	5	**53,51**	89,75	39,77	71,72	53,04	13,28
Botswana	5	**53,51**	63,83	60,74	60,89	42,54	39,56
Indonesia	1	**53,50**	39,94	42,18	66,82	49,46	69,07
Cambodia	2	**53,12**	43,33	33,54	67,58	78,38	42,79
Bhutan	2	**52,68**	47,59	42,08	39,25	49,84	84,63
Lebanon	6	**52,14**	15,92	66,91	23,29	78,01	76,55
Senegal	5	**51,92**	53,64	23,75	83,60	54,01	44,59
Qatar	6	**50,71**	72,94	81,61	44,02	5,00	49,96
Côte d'Ivoire	5	**49,99**	45,72	14,18	79,14	68,07	42,85
Malaysia	2	**49,62**	27,66	64,56	45,25	49,23	61,39
Kenya	5	**49,43**	52,99	17,08	73,05	76,01	28,04
Oman	6	**48,79**	76,20	71,00	0,00	48,07	48,69
United Arab Emirates	6	**48,39**	55,10	77,52	24,42	15,94	68,96
Burkina Faso	5	**47,64**	52,10	14,13	85,97	52,15	33,85
Malawi	5	**47,28**	65,95	4,72	66,80	61,65	37,27
Mozambique	5	**46,23**	61,73	20,54	67,59	75,02	6,25
Benin	5	**46,08**	48,41	11,86	73,24	68,98	27,89
Rwanda	5	**44,76**	52,82	22,94	70,45	52,37	25,19
Cameroon	5	**44,61**	48,17	14,18	60,33	59,49	40,89
Pakistan	2	**44,49**	31,59	24,27	37,43	51,27	77,91
Mauritania	5	**44,23**	59,09	22,98	40,95	82,44	15,69
Mali	5	**42,46**	53,90	0,30	83,63	50,25	24,21
Burundi	5	**42,32**	52,95	12,38	66,42	53,53	26,32
Zambia	5	**42,08**	44,34	31,90	64,74	54,39	15,00
Uganda	5	**41,96**	39,84	17,85	72,91	51,24	27,95
Guinea	5	**41,61**	55,10	4,97	68,72	51,64	27,61
Liberia	5	**41,44**	51,97	17,72	69,76	63,42	4,34
Tanzania	5	**40,41**	45,33	4,02	65,54	72,47	14,71
Zimbabwe	5	**39,82**	33,39	27,78	49,61	50,92	37,41
Nigeria	5	**39,29**	41,06	7,07	73,46	48,90	25,94
Togo	5	**38,88**	49,87	13,75	58,00	57,50	15,30
Sierra Leone	5	**38,69**	44,81	19,32	70,80	58,49	0,00
Madagascar	5	**38,32**	36,55	16,63	76,59	56,19	5,63
Niger	5	**38,13**	53,23	0,00	80,29	48,46	8,66
Ethiopia	5	**37,81**	43,63	3,65	66,99	59,11	15,69

COUNTRY	GROUPS	ICDP 0-100	INDEX ECONOMIC COMPONENT NORMALIZED (after weighting) 0-100	INDEX SOCIAL COMPONENT NORMALIZED (after weighting) 0-100	INDEX GLOBAL COMPONENT NORMALIZED (after weighting) 0-100	INDEX ENVIRONMENTAL COMPONENT NORMALIZED (after weighting) 0-100	INDEX INDUSTRY AND INFRASTRUCTURES COMPONENT NORMALIZED (after weighting) 0-100
Angola	5	**35,93**	70,24	16,64	36,13	55,51	1,11
Singapore	2	**23,70**	0,00	73,89	15,47	0,00	29,17

METHODOLOGY FOR THE DEVELOPMENT OF THE PCDI

This section briefly describes the steps taken to develop the PCDI; the statistical analysis details are included under Annex 2.

1. Variables preparation

The starting point for the construction of the PCDI was the preparation of the variables from the matrix in Excel containing the previously selected countries and variables grouped by policies and components.

The preparation of the variables involved the following actions (see Annex 2):

- Grouping of countries: the countries were grouped into 6 groups:
  - Group 1: OECD countries, accession countries and countries with enhanced cooperation;
  - Group 2: South-East Asia and Pacific;
  - Group 3: Latin America and the Caribbean;
  - Group 4: Europe and Central Asia;
  - Group 5: Sub-Saharan Africa;
  - Group 6: Middle-East and North Africa.

- Exclusion of variables with high missing values (>40% and some with >30%) following the priority of each variable and the number of remaining variables in each policy.

- Grouping of categorical variables (1/0) into a scale variable.

- Elimination of variables with high correlations among them (measure to show if variables are related). The existence of correlations between variables is indicative that two or more of them are quantifying the same information, therefore they may reduce the reliability of the index. This may induce a double count in the variables aggregation step, reducing the reliability of the calculated indices. For this reason the use of statistical methods to identify the existence of such correlations is necessary.

2. Outliers analysis

An outlier is an observation that lies an abnormal distance from other values in a random sample from a population. The outliers often represent a measurement error or a highly

atypical country and their inclusion in the statistical analysis may distort the analysis, particularly in the normalisation process of the variables.
The analysis of outliers was carried out for each variable with a *Boxplot* analysis. The Boxplot is a graphical tool of descriptive statistics that allows for a more detailed analysis regarding the distribution of the sample data, allowing to determine whether there are outliers elements and some sort of bias.
To perform this analysis, all the variables were reviewed and the outliers that appeared were replaced by another value based on statistical criteria (e.g. the highest non- outlier variable, the median value, etc.) and logical interpretation criteria.

3. Normalization

The normalization of variables involves a transformation in the variables to let phenomena measured with different scales be comparable (for example to compare the % of population without access to water and the life expectancy and be able to include them in a single index). The select transformation was the following:

- **Min-Max normalisation**: transformation that normalises the variables to follow a range between 0 and 1 (or between 0 and 100), which imply subtracting the minimum value to the observation and dividing by the range of the values of the variables.

This Min-Max normalisation is very easy to understand as each variable varies between 0 and 100; this is why it is widely used, especially in the construction of synthetic indices, such as the Human Development Index, as it is quite easy to interpret.

4. Classification following the contribution to development

Throughout the whole process of building the index it was observed that not all the variables contributed to the development of a country in the same way, therefore it was decided to evaluate the variables according to their support to the development or their hampering, what we call here the "underlying theory for the construction of PCDI".
Following this theory, two groups were created for each component:

- **Variables that support**: variables that support a country's development (such as for instance the social protection expenditure: increasing the social protection expenditure has a positive effect in the country's development);
- **Variables that hinder**: variables that hinder a country's development (such as the % of vulnerable employment: a high % of vulnerable employment definitely hinders the development of a country).

The result of this clustering of variables following the above-mentioned theory is shown in the following table.

Dimension	Variables that contribute		Variables that hinder	
Economic component	FIS1	Tax revenue (%GDP)	F2	Bank assets (%GDP)
	FIS3	Variation rate of the Gini Index pre and post taxes and transfers (%)	F5	External service, total debt (TSD,US $ at current prices / Exports of goods and services (US $ at current prices) (%)
	FIS5	Environment protection expenditure (% GDP)	FIS6	Financial Secrecy Index
Social component	EDU5	Survival rate to the last grade of secondary education, both sexes (%)	EDU2	Rate of out-of-school children of primary school age, both sexes (%)
	EDU11	Net enrolment rate, primary, gender parity index (GPI)	EDU8	Pupil-teacher ratio in pre-primary education
	PS1	Public social protection expenditure (%GDP)	EDU9	Pupil-teacher ratio in primary education
	PS5	Share of population above statutory pensionable age receiving an old age pension	EDU14	Repetition rate in primary education (all grades), both sexes (%)
	PS8	Benefits incidence in poorest quintile (%)	IG2	Unpaid family workers (% of female employment)
	IG5_6_7	Legislation against gender violence, sexual harassment and against marital rape	EM6	Difference of vulnerable Employment between women and men (%)
	IG11	Mandatory minimum length of paid maternity leave (in calendar days)		
	IG14	Position shown at the initiative of the UN in favor of the LGBT		
	S2	Health life expectancy		
	S3	Total density per 100.000 population: hospitals		
	S11	Improved sanitation facilities (% of population with access)		
	CIT6	Enrollment ratio of female with respect to male in tertiary education (%)		
	CIT13	Percentage of graduates from tertiary education who are female (%)		
Global component	J4_5	Legality of homosexuality and of equal marriage	PYS1	Military Expenditure (%GDP)
	J6	Participation in the ratification of international treaties of the UN about human rights (%)	PYS3	Military personnel (per 100.000 inhabitants)
	J8	Universal jurisdiction		
	J9	Ratification of UN treaties on International Justice		
	J13_14_15	Women rights[1]		
	PYS6	International treaties about weapons		
	M4_5	Convention relating to the status of refugees and International Convention on the protection of the Rights of all migrant workers and members of their families		
	C3	Existence of a specific structure of cooperation an appreciation of its political rank		
Environmental component	P2	Artisanal fishing opportunities	DR9	Use of fertilizers
	P4	Clean waters	B2	Ecological footprint by production (gha per person)
	P6	Biodiversity	EN2	Ecological footprint of imports (gha per person)
	P9	Participation in treaties, conventions and agreements on fishing in %	EN4	Metric tons of carbon dioxide per person

[1] *Esta variable incluye las siguientes variables: J_{13}: Does a woman's testimony carry the same evidentiary weight in court as a man's? J_{14}: Can a married woman convey citizenship to her non-national spouse in the same way as a man?. J_{15}: Are married women required by law to obey their husbands?*

Dimension	Variables that contribute		Variables that hinder	
Industry and infrastructures component	IT3	Improved water supply, rural sector (%population with access)	T1	International tourist arrivals (% of the population in the host country)
	IT4	Access to electricity (% of population)	IN5	Annual freshwater withdrawals, industry (% of total freshwater withdrawal)
	IN1	R&D (%GDP)	IN8	Difference between male and female employment in the industrial sector (%)

5. Statistical weights calculation

There are two main approaches for calculating weights in the construction of a synthetic index: determining them as coefficients of a regression model or as weights of the first principal component from a principal component analysis. The first approach is recommended when the studied variables have relative influence on an exogenous variable of interest (e.g. GDP's growth in a country). The second is more suitable when studying consistency indicators able to summarize in the best possible way all the information gathered in a large set of variables. Therefore, the weights of each component of the PCDI were obtained through a principal component analysis allowing extracting the main factors of all political variables included in a component. Thus a synthetic indicator for each component, to be added later to build the ICPD, is obtained.

The principal component analysis is a statistical procedure that uses an orthogonal transformation to convert a set of observations of possibly correlated variables into a set of values of linearly uncorrelated variables called principal components. This transformation is defined in such a way that the first principal component has the largest possible variance (that is, accounts for as much of the variability in the data as possible), and each succeeding component in turn has the highest variance possible under the constraint that it is un-correlated to the preceding components.

The final selection of variables that are part of the PCDI was made from the confluence of a statistical criterion (CPA results for each component identifying the significant variables and their weights) and the theoretical framework.

In what follows, the formulas (weights and variables) for calculating the index in each component are shown. The weights were normalized to sum to 1 in each component (for the variables contributing and the variables that hinder).

Economic component:

$$EC = [0{,}454*FIS1 + 0{,}297*FIS3 + 0{,}250*FIS5] - [0{,}333*F2 + 0{,}333*F5 + 0{,}333*FIS6]$$

Social component:

SC = [0,098*EDU5 + 0,074*EDU11 + 0,054*PS1 + 0,087*PS5 + 0,078*PS8 + 0,004*IG5_6_7 + 0,043*IG11 + 0,049*IG14 + 0,101*S2 + 0,084*S3 + 0,119*S11 + 0,112*CIT6 + 0,097*CIT13] – [0,146*EDU2 + 0,180*EDU8 + 0,195*EDU9 + 0,175*EDU14 + 0,150*IG2 + 0,172*EM6]

Global component:

GC = [0,131*J4_5 + 0,214*J6 + 0,175*J8 + 0,150*J9 + 0,160*J13_14_15 + 0,099*PYS6+ 0,021*M4_5 +0,051*C3] – [0,499*PYS1 + 0,501*PYS3]

Environmental component:

EC = [0,279*P2 + 0,220*P4 + 0,282*P6 + 0,219*P9] – [0,156*DR9 + 0,305*B2 + 0,252*EN2 + 0,287*EN4]

Industry and infrastructures component:

IIC = [0,397*IT3 + 0,380*IT4 + 0,223*IN1] – [0,350*T1 + 0,359*IN5 + 0,292*IN8]

6. Imputation

In order to be able to compute the PCDI for a country, it is necessary to have the full set of observations for all the variables for that particular country. This required imputing missing values for those variables that were selected during the previous step. The imputation was carried out by assigning to the missing value the average value from the geographic group to which the country belongs (for instance, the missing value of variable X for the country J, which belongs to the geographic group 1, was replaced by the average value of variable X in the geographic group 1) .

7. The PCDI

The PCDI was calculated based on the steps that follow:

Step 1: calculation of a synthetic index for each of the five components by following the formula presented under section 5.

Step 2: a relative weight was assigned to each component following a principle of common but differentiated responsibilities (explained below):

	Economic component	Social component	Global component	Environmental component	Industry and infrastructures component
Assigned Weight	**3**	**1**	**2**	**3**	**1**

The weights of each component are determined based on two elements:

- Impact of each component on the overall development policy. Thus, greater weight is assigned to those components which generally have greater impacts beyond the borders of the country that implement those policies.
- Extent to which each component limits the ability to design and implement policies consistent with development. So, those components which, by their nature, influence more the shaping of the international framework that determines the margin available to countries to establish policies consistent with development will be weighted more.

Following the above elements:

- The economic and environmental components receive the maximum weight (3) because from the point of view of the global interdependences, the policies contained in these two components have more influence on the possibilities for countries to develop policies consistent with development and therefore determine to a greater extend development opportunities, not only for the countries that implement them, but also for other countries.
- The global component receives a weight of 2 because, despite its importance from the point of view of the global interdependences, it has a strong normative nature, mainly based on the signing and ratification of international treaties within this component, and therefore, it is not so directly related to the outcomes and impacts of policies.
- The social and industry and infrastructures components receive the smallest weight (1), since it is considered that political decisions within these components affect the possibilities for countries to develop coherent policies less than in the other three components.

Step 3: each synthetic index by component was normalized to a scale 0-100, following the method described under section 3.

Step 4: the PCDI was calculated as the average of the five indexes by component.

ANNEXES

Statistical services for the

Development of a Policy Coherence for Development Index

Annex 2

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A. Data preparation

1) Variable B1 "Global Hunger Index". Values of GHI = "<5" have been replaced by the values the following table (https://dataverse.harvard.edu/dataset.xhtml?persistentId=doi:10.7910/DVN/27557)

País	GHI
Algeria	2,7
Argentina	2,4
Armenia	3,2
Azerbaijan	2,9
Belarus	0,6
Bosnia & Herzegovina	1,5
Brazil	3,5
Bulgaria	3,4
Chile	1,5
Costa Rica	3,4
Croatia	0,7
Cuba	1,1
Egypt, Arab Republic	2,6
Estonia	1,5
Iran, Islamic Republic	3,5
Jamaica	4,5
Jordan	2,7
Kazakhstan	2,0
Kuwait	1,6
Kyrgyz Republic	4,1
Latvia	2,0
Lebanon	2,3
Lithuania	0,8
Macedonia, FYR	2,1
Mexico	1,7
Montenegro	1,2
Morocco	3,7
Panama	4,6
Romania	1,4
Russian Federation	1,1
Saudi Arabia	2,5
Serbia	2,1
Slovak Republic	2,6
South Africa	4,8
Trinidad & Tobago	4,0
Tunisia	1,5
Turkey	1,5
Ukraine	1,0
Uruguay	3,6
Venezuela, RB	2,2

2) Variables revision

The following variables have been modified to reflect the designated use:

F2, F4, F5, FIS6, EDU1, EDU2, EDU3, EDU8, EDU9, EDU10, EDU11, EDU12, edu13, EDU14, PS7, PS9, S10, IG2, IG4, EM1, EM3, EM6, EM8, EM9, PYS1, PYS3, PYS4, PYS5, M3, M7, P1, P5, P11, DR6, DR7, DR9, DR10, B1, B2, B3, B11, B12, EN2, EN3, EN4, EN6, U4, U5, T1, T2, IT2, IT6, IT9, IN2, IN4, IN5, IN6, IN8, IN9.

3) Countries have been grouped into 6 groups:

Countries	Group	Group's name
Albania	4	Europe and Central Asia
Algeria	6	Middle-East and North Africa
Angola	5	Sub-Saharan Africa
Argentina	3	Latin America and the Caribbean
Armenia	4	Europe and Central Asia
Australia	1	OECD countries, accession countries and countries with enhanced cooperation
Austria	1	OECD countries, accession countries and countries with enhanced cooperation
Azerbaijan	4	Europe and Central Asia
Bangladesh	2	South-East Asia and Pacific
Belarus	4	Europe and Central Asia
Belgium	1	OECD countries, accession countries and countries with enhanced cooperation
Benin	5	Sub-Saharan Africa
Bhutan	2	South-East Asia and Pacific
Bolivia	3	Latin America and the Caribbean
Bosnia and Herzegovina	4	Europe and Central Asia
Botswana	5	Sub-Saharan Africa
Brazil	1	OECD countries, accession countries and countries with enhanced cooperation
Bulgaria	4	Europe and Central Asia
Burkina Faso	5	Sub-Saharan Africa
Burundi	5	Sub-Saharan Africa
Cambodia	2	South-East Asia and Pacific
Cameroon	5	Sub-Saharan Africa
Canada	1	OECD countries, accession countries and countries with enhanced cooperation
Chile	1	OECD countries, accession countries and countries with enhanced cooperation
China	1	OECD countries, accession countries and countries with enhanced cooperation
Colombia	3	Latin America and the Caribbean
Costa Rica	3	Latin America and the Caribbean
Côte d'Ivoire	5	Sub-Saharan Africa
Croatia	4	Europe and Central Asia

Cuba	3	Latin America and the Caribbean
Cyprus	4	Europe and Central Asia
Czech Republic	1	OECD countries, accession countries and countries with enhanced cooperation
Denmark	1	OECD countries, accession countries and countries with enhanced cooperation
Dominican Republic	3	Latin America and the Caribbean
Ecuador	3	Latin America and the Caribbean
Egypt	6	Middle-East and North Africa
El Salvador	3	Latin America and the Caribbean
Estonia	1	OECD countries, accession countries and countries with enhanced cooperation
Ethiopia	5	Sub-Saharan Africa
Finland	1	OECD countries, accession countries and countries with enhanced cooperation
France	1	OECD countries, accession countries and countries with enhanced cooperation
Georgia	4	Europe and Central Asia
Germany	1	OECD countries, accession countries and countries with enhanced cooperation
Ghana	5	Sub-Saharan Africa
Greece	1	OECD countries, accession countries and countries with enhanced cooperation
Guatemala	3	Latin America and the Caribbean
Guinea	5	Sub-Saharan Africa
Honduras	3	Latin America and the Caribbean
Hungary	1	OECD countries, accession countries and countries with enhanced cooperation
Iceland	1	OECD countries, accession countries and countries with enhanced cooperation
India	1	OECD countries, accession countries and countries with enhanced cooperation
Indonesia	1	OECD countries, accession countries and countries with enhanced cooperation
Iran (Islamic Republic of)	6	Middle-East and North Africa
Ireland	1	OECD countries, accession countries and countries with enhanced cooperation
Israel	1	OECD countries, accession countries and countries with enhanced cooperation
Italy	1	OECD countries, accession countries and countries with enhanced cooperation
Jamaica	3	Latin America and the Caribbean
Japan	1	OECD countries, accession countries and countries with enhanced cooperation
Jordan	6	Middle-East and North Africa
Kazakhstan	4	Europe and Central Asia
Kenya	5	Sub-Saharan Africa
Kuwait	6	Middle-East and North Africa
Kyrgyzstan	4	Europe and Central Asia

Latvia	4	Europe and Central Asia
Lebanon	6	Middle-East and North Africa
Lesotho	5	Sub-Saharan Africa
Liberia	5	Sub-Saharan Africa
Lithuania	4	Europe and Central Asia
Luxembourg	1	OECD countries, accession countries and countries with enhanced cooperation
Macedonia, FYR	4	Europe and Central Asia
Madagascar	5	Sub-Saharan Africa
Malawi	5	Sub-Saharan Africa
Malaysia	2	South-East Asia and Pacific
Mali	5	Sub-Saharan Africa
Malta	6	Middle-East and North Africa
Mauritania	5	Sub-Saharan Africa
Mauritius	5	Sub-Saharan Africa
Mexico	1	OECD countries, accession countries and countries with enhanced cooperation
Mongolia	2	South-East Asia and Pacific
Montenegro	4	Europe and Central Asia
Morocco	6	Middle-East and North Africa
Mozambique	5	Sub-Saharan Africa
Namibia	5	Sub-Saharan Africa
Nepal	2	South-East Asia and Pacific
Netherlands	1	OECD countries, accession countries and countries with enhanced cooperation
New Zealand	1	OECD countries, accession countries and countries with enhanced cooperation
Nicaragua	3	Latin America and the Caribbean
Niger	5	Sub-Saharan Africa
Nigeria	5	Sub-Saharan Africa
Norway	1	OECD countries, accession countries and countries with enhanced cooperation
Oman	6	Middle-East and North Africa
Pakistan	2	South-East Asia and Pacific
Panama	3	Latin America and the Caribbean
Paraguay	3	Latin America and the Caribbean
Peru	3	Latin America and the Caribbean
Philippines	2	South-East Asia and Pacific
Poland	1	OECD countries, accession countries and countries with enhanced cooperation
Portugal	1	OECD countries, accession countries and countries with enhanced cooperation
Qatar	6	Middle-East and North Africa
Republic of Korea	1	OECD countries, accession countries and countries with enhanced cooperation
Republic of Moldova	4	Europe and Central Asia
Romania	4	Europe and Central Asia

Russian Federation	4	Europe and Central Asia
Rwanda	5	Sub-Saharan Africa
Saudi Arabia	6	Middle-East and North Africa
Senegal	5	Sub-Saharan Africa
Serbia	4	Europe and Central Asia
Sierra Leone	5	Sub-Saharan Africa
Singapore	2	South-East Asia and Pacific
Slovakia	1	OECD countries, accession countries and countries with enhanced cooperation
Slovenia	1	OECD countries, accession countries and countries with enhanced cooperation
South Africa	1	OECD countries, accession countries and countries with enhanced cooperation
Spain	1	OECD countries, accession countries and countries with enhanced cooperation
Sri Lanka	2	South-East Asia and Pacific
Sweden	1	OECD countries, accession countries and countries with enhanced cooperation
Switzerland	1	OECD countries, accession countries and countries with enhanced cooperation
Tajikistan	4	Europe and Central Asia
Tanzania	5	Sub-Saharan Africa
Thailand	2	South-East Asia and Pacific
Togo	5	Sub-Saharan Africa
Trinidad and Tobago	3	Latin America and the Caribbean
Tunisia	6	Middle-East and North Africa
Turkey	1	OECD countries, accession countries and countries with enhanced cooperation
Uganda	5	Sub-Saharan Africa
Ukraine	4	Europe and Central Asia
United Arab Emirates	6	Middle-East and North Africa
United Kingdom of Great Britain and Northern Ireland	1	OECD countries, accession countries and countries with enhanced cooperation
United States of America	1	OECD countries, accession countries and countries with enhanced cooperation
Uruguay	3	Latin America and the Caribbean
Venezuela (Bolivarian Republic of)	3	Latin America and the Caribbean
Viet Nam	2	South-East Asia and Pacific
Zambia	5	Sub-Saharan Africa
Zimbabwe	5	Sub-Saharan Africa

4) Variables with high missing values (>40%) have been excluded:

VAR	% MISSING VALUES	ACTION
F3	44,8%	Excluded
F6	66,9%	Excluded
FIS6	57,8%	Not excluded
PS10	46,8%	Excluded
S5	50,0%	Excluded
S6	50,0%	Excluded
S12	53,9%	Excluded
S13	53,9%	Excluded
CIT12	45,5%	Excluded
EM5	42,9%	Excluded
J12	43,5%	Excluded
PYS2	51,9%	Excluded
C4	62,3%	Excluded
P10	66,9%	Excluded
P12	50,6%	Excluded
DR1	58,4%	Excluded
DR3	40,9%	Excluded
DR4	57,8%	Excluded
B9	51,3%	Excluded
U1	40,9%	Excluded
U3	43,5%	Excluded
U6	42,2%	Excluded
T3	29,9%	Not excluded
T7	53,9%	Excluded
IT8	57,8%	Excluded
IN4	14,3%	Not excluded

5) Variables with more than 30% of missing values have been revised and the following have been excluded:

VAR	% MISSING VALUES
EDU6	31,8%
CIT9	39,6%
DR5	32,5%
DR13	35,7%
IN3	34,4%

6) Categorical variables have been grouped into scale variables.

VAR1	VAR2	VAR3	FINAL VARIABLE
IG5	IG6	IG7	IG5_6_7
M4	M5		M4_5
J4	J5		J4_5
J13	J14	J15	J13_14_15

7) Within each policy, correlations between variables have been studied. It has been suggested to exclude variables with high correlation as per the following table.

VAR 1	VAR 2	CORR.	COMMENT	ACTION
FIS1	FIS2	78%	It is suggested to exclude variable FIS2 because shows higher missing values.	FIS2 excluded
FIS1	FIS3	72%	It is suggested to exclude variable FIS3	None
EDU1	EDU12	80%	Select the variable to exclude.	EDU12 excluded
EDU4	EDU9	84%	It is suggested to exclude variable EDU4 because shows higher missing values and priority 2.	EDU4 excluded
EDU4	EDU10	71%	It is suggested to exclude variable EDU4.	EDU4 excluded
EDU4	EDU14	70%	It is suggested to exclude variable EDU4.	EDU4 excluded
EDU9	EDU10	82%	It is suggested to exclude variable EDU10 because shows priority 2.	EDU10 excluded
PS1	PS2	94%	It is suggested to exclude variable PS2 because shows higher missing values and priority 2.	PS2 excluded
PS1	PS3	80%	It is suggested to exclude variable PS3 because shows higher missing values and priority 2.	PS3 excluded
PS1	PS5	73%	It is suggested to exclude variable PS5.	None
IG11	IG13	98%	It is suggested to exclude variable IG11 because shows priority 3.	IG13 excluded
S1	S2	99%	It is suggested to exclude variable S2 because for development policies it is deemed more important S1.	S1 excluded
S7	S8	71%	It is suggested to exclude variable S8 because shows priority 2.	None
CIT1	CIT2	76%	It is suggested to exclude variable CIT2 because shows priority 3.	CIT2 excluded
CIT1	CIT7	77%	It is suggested to exclude variable CIT7 because shows priority 3.	None
CIT1	CIT10	83%	It is suggested to exclude variable CIT10 because shows priority 2.	CIT10 excluded
CIT1	CIT11	84%	It is suggested to exclude variable CIT11 because shows priority 2.	CIT11 excluded
EM8	EM9	77%	It is suggested to exclude variable EM8 because shows more missing values and priority 3.	EM8 excluded
PYS10	PYS11	87%	Select the variable to exclude.	PYS11 excluded
P5	P6	-76%	It is suggested to exclude variable P5 because shows more missing values.	P5 excluded
DR7	DR8	-70%	Select the variable to exclude.	DR8 excluded
EN3	EN6	82%	Select the variable to exclude.	EN6 excluded
IT4	IT9	87%	Select the variable to exclude.	IT9 excluded
IT3	IT4	78%	Select the variable to exclude.	None
IT3	IT5	73%	Select the variable to exclude.	IT5 excluded
IT3	IT9	78%	Select the variable to exclude.	IT9 excluded
IT4	IT5	74%	Select the variable to exclude.	IT5 excluded
IT5	IT7	74%	Select the variable to exclude.	IT5 and IT7 excluded
IT5	IT9	73%	Select the variable to exclude.	IT5 and IT9 excluded
IN6	IN8	71%	It is suggested to exclude variable IN8	None

			because shows more missing values and priority 2.	

8) Within each block, correlations between variables have been studied. It has been suggested to exclude variables with high correlation as per the following table.

VAR 1	VAR 2	CORR.	COMMENT	ACTION
			Social block	
EDU1	PS7	70%	It is suggested to exclude variable EDU1 because shows more missing values and lower priority.	EDU1 and PS7 excluded
EDU1	S11	72%	It is suggested to exclude variable EDU1 because shows more missing values and lower priority.	EDU1 excluded
EDU9	PS7	78%	It is suggested to exclude variable PS7 because shows lower priority.	PS7 excluded
EDU9	S2	79%	It is suggested to exclude variable EDU9 because shows more missing values.	None
EDU9	EM9	77%	It is suggested to exclude variable EM9 because shows more missing values and lower priority.	EM9 excluded
PS1	S7	82%	Select the variable to exclude.	S7 excluded
PS1	EM4	81%	It is suggested to exclude variable EM4 because shows more missing values and lower priority.	EM4 excluded
PS7	S11	79%	It is suggested to exclude variable PS7 because shows lower priority.	PS7 excluded
PS7	S2	74%	It is suggested to exclude variable PS7 because shows lower priority.	PS7 excluded
S2	CIT1	75%	Select the variable to exclude.	None
S2	EM9	72%	It is suggested to exclude variable EM9 because shows more missing values and lower priority.	EM9 excluded
S11	EM9	78%	It is suggested to exclude variable EM9 because shows more missing values and lower priority.	EM9 excluded
CIT3	EM4	73%	It is suggested to exclude variable EM4	CIT3 excluded
			Global block	
PYS10	C5	80%	It is suggested to exclude variable PYS10 because shows lower priority.	PYS10 excluded
			Environmental block	
DR2	B1	72%	It is suggested to exclude variable B1 because shows more missing values.	DR2 excluded
DR2	B11	81%	It is suggested to exclude variable DR2 because shows lower priority.	DR2 and B11 excluded
DR2	EN3	89%	It is suggested to exclude variable DR2 because shows lower priority.	DR2 excluded
B1	EN3	87%	It is suggested to exclude variable B1 because shows more missing values.	B1 excluded
B2	EN3	-70%	Select the variable to exclude.	EN3 excluded
B11	EN3	82%	Select the variable to exclude.	B11 and EN3 excluded

Industry and infrastructures block				
U2	IT3	77%	Select the variable to exclude.	U2 excluded
U2	IT4	88%	Select the variable to exclude.	U2 excluded

9) Correlations between blocks have been studied. It has been suggested to exclude variables with high correlation as per the following table.

VAR 1	VAR 2	CORR.	COMMENT	ACTION
IG5_6_7	J11	99%	It is suggested to exclude variable J11.	J11 excluded
PYS5	U5	96%	It is suggested to exclude variable PYS5 because shows more missing values.	PYS5 excluded

B. Statistical analysis

Analysis of outliers for each variable. The results of the analysis are presented in the table below.

VAR	OUTLIERS	ACTION
F2	The variable shows an outlier for Luxemburg	Replace it by the maximum (no outlier) value.
FIS1	The variable shows an outlier for Kuwait	Replace it by the maximum (no outlier) value.
FIS5	The variable shows an outlier for The Netherlands	Replace it by the maximum (no outlier) value.
EDU2	The variable shows an outlier for Liberia	Replace it by the maximum (no outlier) value.
EDU3	The variable shows an outlier for South Africa	Replace it by the maximum (no outlier) value.
EDU7	The variable shows an outlier for Ghana	Replace it by the median value.
EDU8	The variable shows an outlier for Tanzania	Replace it by the median value.
EDU9	The variable shows an outlier for Malawi	Replace it by the median value.
EDU11	The variable shows an outlier for Angola	Replace it by the minimum (no outlier) value.
EDU14	The variable shows an outlier for Burundi	Replace it by the maximum (no outlier) value.
PS8	The variable shows an outlier for Peru	Replace it by the median of the group to which the country belongs.
PS9	The variable shows an outlier for Malawi	Replace it by the minimum (no outlier) value.
IG1	The variable shows an outlier for Ruanda	Replace it by the maximum (no outlier) value.
IG4	The variable shows an outlier for Azerbaijan	Replace it by the maximum (no outlier) value.
IG9	The variable shows an outlier for Finland	Replace it by the maximum (no outlier) value.
S4	The variable shows an outlier for Sri Lanka and Czech Republic	Replace Sri Lanka by the maximum (no outlier) value. Replace Czech Republic by the median value.
S9	Constant value (100) for the majority of the countries (77%)	Variable S9 excluded.
CIT6	The variable shows an outlier for Qatar	Replace it by the maximum (no outlier) value.
EM7	Constant value (8) for the majority of the countries (79%)	None.
PYS1	The variable shows an outlier for Oman and Saudi Arabia	Replace it by the maximum (no outlier) value.
M3	The variable shows an outlier for Jordan and Lebanon	Replace it by the maximum (no outlier) value.
M8	The variable shows an outlier for Qatar y Kuwait	Replace it by the maximum (no outlier) value.
DR9	The variable shows an outlier for Qatar	Replace it by the maximum (no outlier) value.
B12	The variable shows an outlier for Mauritania	Replace it by the maximum (no outlier) value.
EN1	The variable shows an outlier for	Replace it by the maximum (no outlier)

	Denmark	value.
EN2	The variable shows an outlier for Belgium	Replace it by the maximum (no outlier) value.
U5	The variable shows an outlier for Honduras	Replace it by the maximum (no outlier) value.
T1	The variable shows an outlier for Malta	Replace it by the maximum (no outlier) value.
IT1	The variable shows an outlier for Canada	Replace it by the maximum (no outlier) value.
IT2	The variable shows an outlier for Pakistan	Replace it by the maximum (no outlier) value.
IT10	The variable shows an outlier for Angola	Replace it by the minimum (no outlier) value.
IN8	The variable shows an outlier for Qatar and Oman	Replace it by the maximum (no outlier) value.
IN9	The variable shows an outlier for Pakistan	Replace it by the maximum (no outlier) value.

C. Principal components analysis

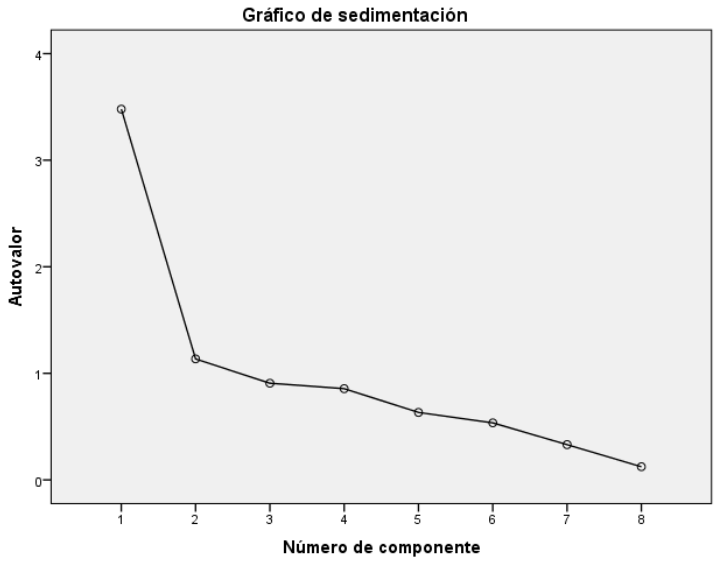
Variables have been first normalised into a scale 0-100 in order to be able to compare variables measured with different scale (for example to compare the % of population without access to water and the life expectancy).

The results of the principal components analysis are presented in what follows.

C.1 Economic block

Total variance explained

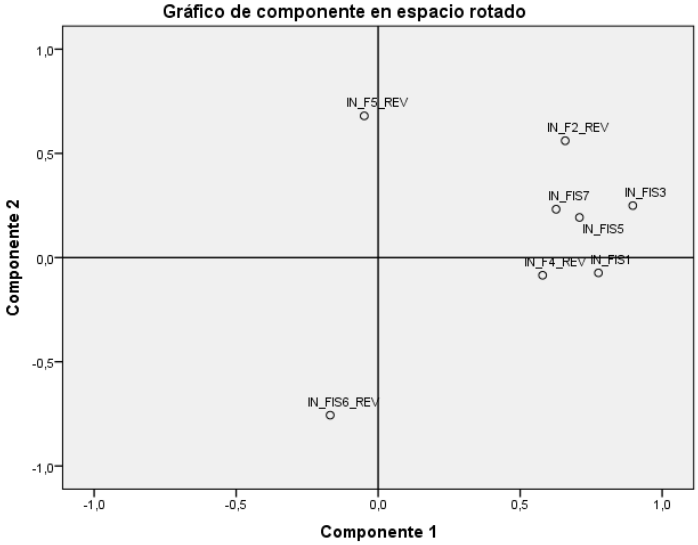
Component	Initial eigenvalues			Extraction sums of squared loadings		
	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %
1	3,479	43,489	43,489	3,100	38,752	38,752
2	1,135	14,192	57,681	1,514	18,929	57,681
3	,907	11,336	69,017			
4	,856	10,700	79,717			
5	,633	7,915	87,633			
6	,535	6,690	94,323			
7	,331	4,135	98,458			
8	,123	1,542	100,000			



Component matrix

	Component	
	1	2
IN_F2_REV	,658	,561
IN_F4_REV	,579	-,085
IN_F5_REV	-,049	,680
IN_FIS1	,776	-,073
IN_FIS3	,897	,249
IN_FIS5	,709	,193
IN_FIS6_REV	-,169	-,756
IN_FIS7	,627	,232

Gráfico de componente en espacio rotado



Component score coefficient matrix

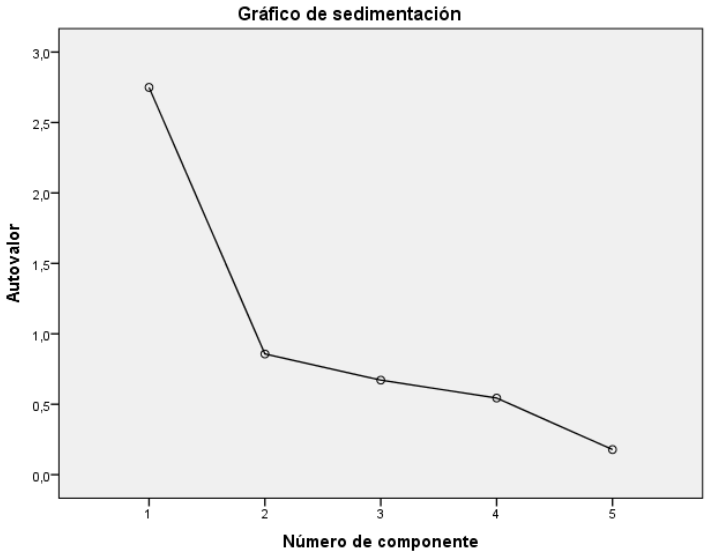
	Component	
	1	2
IN_F2_REV	,130	,296
IN_F4_REV	,240	-,193
IN_F5_REV	-,167	,544
IN_FIS1	,313	-,227
IN_FIS3	,289	,000
IN_FIS5	,230	-,004
IN_FIS6_REV	,100	-,557
IN_FIS7	,190	,045

It can be noted that a group of variables (F2, F4, FIS1, FIS3, FIS5 and FIS7) contribute to a country's development, while others (F5 and FIS6) hinder it. Variable F2 is moved to the

group of variables that hinder a country's development, due to its meaning. The principal component analysis is run again with just the variables from the group that contribute to development: F4, FIS1, FIS3, FIS5 and FIS7.

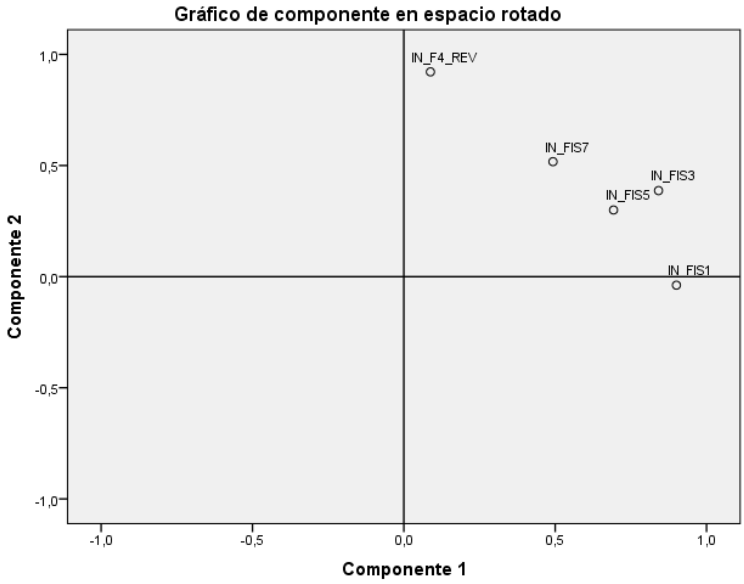
Total variance explained

Component	Initial eigenvalues			Extraction sums of squared loadings		
	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %
1	2,749	54,987	54,987	2,249	44,976	44,976
2	,857	17,140	72,127	1,358	27,152	72,127
3	,671	13,429	85,556			
4	,544	10,879	96,435			
5	,178	3,565	100,000			



Component matrix

	Component	
	1	2
IN_F4_REV		,921
IN_FIS1	,900	
IN_FIS3	,841	
IN_FIS5	,693	
IN_FIS7		,517



Component score coefficient matrix

	Component	
	1	2
IN_F4_REV	-,276	,848
IN_FIS1	,532	-,355
IN_FIS3	,348	,071
IN_FIS5	,293	,041
IN_FIS7	,101	,319

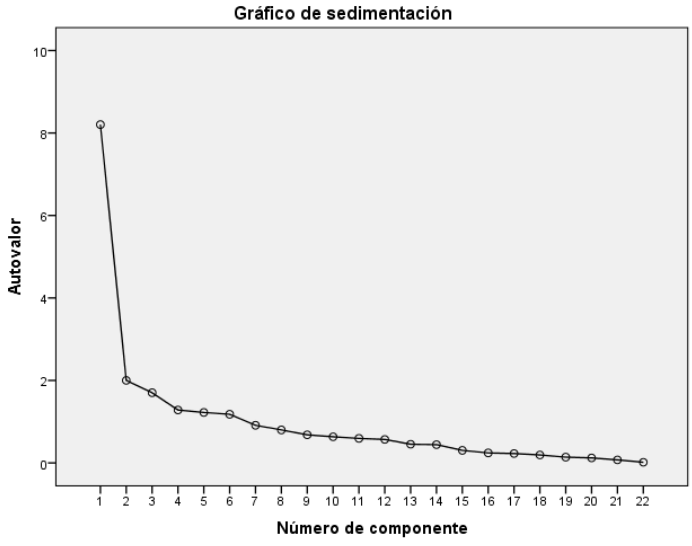
With respect to the other group of variables that hinder a country's development, it is decided to leave those three variables into the computation of the final index. The weight assigned to each variable will be 0,33.

C.2 Social block

➢ "EDUCATION", "HEALTH", "SCIENCE AND TECHNOLOGY" POLICIES

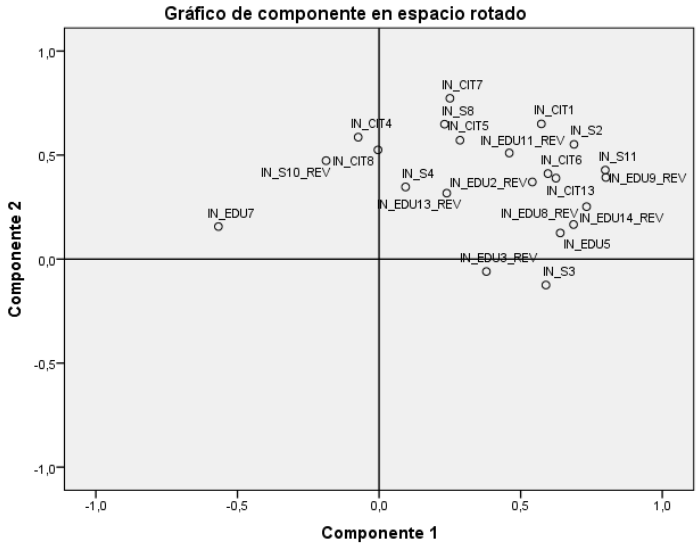
Total variance explained

Component	Initial eigenvalues			Extraction sums of squared loadings		
	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %
1	8,204	37,292	37,292	5,864	26,655	26,655
2	2,001	9,094	46,387	4,341	19,731	46,387
3	1,702	7,736	54,123			
4	1,283	5,833	59,955			
5	1,224	5,561	65,517			
6	1,179	5,360	70,877			
7	,912	4,146	75,022			
8	,800	3,638	78,660			
9	,681	3,097	81,757			
10	,635	2,885	84,642			
11	,594	2,701	87,343			
12	,569	2,588	89,931			
13	,453	2,061	91,992			
14	,443	2,015	94,007			
15	,305	1,384	95,392			
16	,242	1,101	96,493			
17	,228	1,036	97,528			
18	,192	,873	98,402			
19	,141	,639	99,041			
20	,121	,551	99,592			
21	,074	,338	99,929			
22	,016	,071	100,000			



Component matrix

	Component	
	1	2
IN_EDU2_REV	,541	,371
IN_EDU3_REV	,379	-,060
IN_EDU5	,640	,126
IN_EDU7	-,567	,156
IN_EDU8_REV	,687	,166
IN_EDU9_REV	,801	,392
IN_EDU11_REV	,460	,510
IN_EDU13_REV	,239	,317
IN_EDU14_REV	,733	,252
IN_S2	,688	,552
IN_S3	,589	-,125
IN_S4	,093	,347
IN_S8	,231	,649
IN_S10_REV	-,187	,473
IN_S11	,799	,428
IN_CIT1	,573	,650
IN_CIT4	-,074	,586
IN_CIT5	,286	,571
IN_CIT6	,596	,411
IN_CIT7	,250	,773
IN_CIT8	-,004	,525
IN_CIT13	,625	,389



Component score coefficient matrix

	Component	
	1	2
IN_EDU2_REV	,075	,033
IN_EDU3_REV	,111	-,091
IN_EDU5	,146	-,072
IN_EDU7	-,179	,160
IN_EDU8_REV	,151	-,066
IN_EDU9_REV	,140	-,006
IN_EDU11_REV	,028	,098
IN_EDU13_REV	,005	,070
IN_EDU14_REV	,148	-,044
IN_S2	,081	,071
IN_S3	,179	-,152
IN_S4	-,039	,107
IN_S8	-,058	,189
IN_S10_REV	-,136	,203
IN_S11	,133	,007
IN_CIT1	,033	,127
IN_CIT4	-,127	,223
IN_CIT5	-,029	,152
IN_CIT6	,082	,038
IN_CIT7	-,075	,230
IN_CIT8	-,097	,188
IN_CIT13	,094	,025

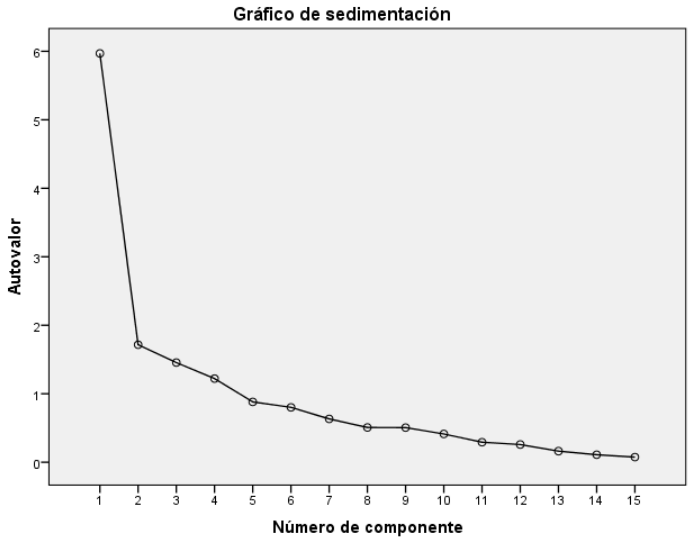
For these three policies the principal component analysis doesn't show any specific variable that contribute or hinder a country's development. Therefore the grouping of variables will be done based on the meaning of each variable:

- Variables that contribute: EDU5, EDU7, EDU11, S2, S3, S4, S8, S11, CIT1, CIT4, CIT5, CIT6, CIT7, CIT8, CIT13.
- Variables that hinder: EDU2, EDU3, EDU8, EDU9, EDU13, EDU14, S10.

The principal component analysis is run again with the first group of variables.

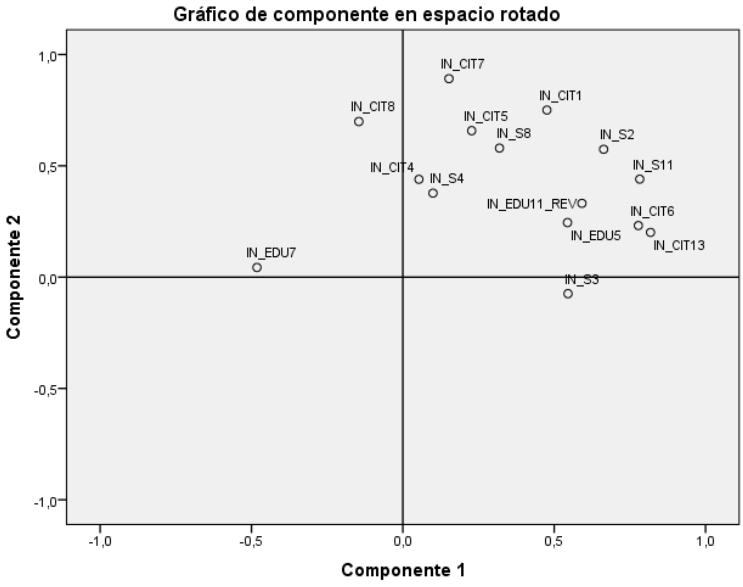
Total variance explained

Component	Initial eigenvalues			Extraction sums of squared loadings		
	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %
1	5,969	39,793	39,793	3,939	26,263	26,263
2	1,716	11,438	51,231	3,745	24,968	51,231
3	1,455	9,700	60,932			
4	1,222	8,146	69,078			
5	,881	5,872	74,950			
6	,802	5,343	80,293			
7	,633	4,218	84,511			
8	,507	3,382	87,894			
9	,506	3,372	91,265			
10	,413	2,752	94,017			
11	,292	1,948	95,965			
12	,258	1,722	97,687			
13	,162	1,079	98,766			
14	,110	,732	99,498			
15	,075	,502	100,000			



Component matrix

	Component	
	1	2
IN_EDU5	,544	
IN_EDU7		
IN_EDU11_REV	,592	
IN_S2	,663	,574
IN_S3	,546	
IN_S4		
IN_S8		,580
IN_S11	,782	
IN_CIT1		,750
IN_CIT4		
IN_CIT5		,658
IN_CIT6	,778	
IN_CIT7		,891
IN_CIT8		,699
IN_CIT13	,818	



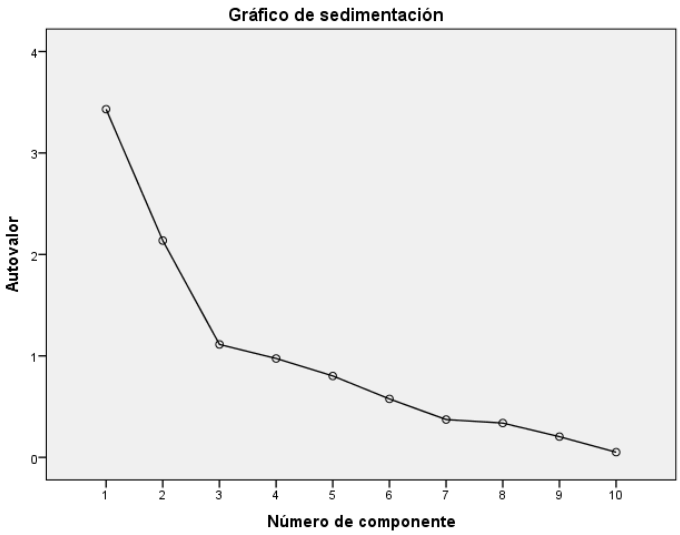
Component score coefficient matrix

	Component	
	1	2
IN_EDU5	,148	-,019
IN_EDU7	-,185	,117
IN_EDU11_REV	,148	,005
IN_S2	,123	,083
IN_S3	,215	-,142
IN_S4	-,042	,124
IN_S8	-,004	,157
IN_S11	,195	,007
IN_CIT1	,018	,190
IN_CIT4	-,072	,158
IN_CIT5	-,053	,206
IN_CIT6	,236	-,072
IN_CIT7	-,129	,311
IN_CIT8	-,198	,299
IN_CIT13	,258	-,092

➢ "SOCIAL POLICY", "EMPLOYMENT" POLICIES

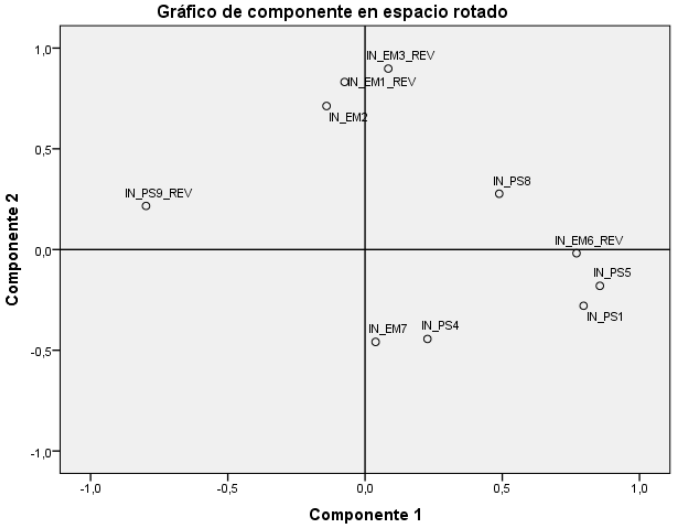
Total variance explained

	Initial eigenvalues			Extraction sums of squared loadings		
Component	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %
1	3,431	34,313	34,313	2,921	29,207	29,207
2	2,137	21,370	55,683	2,648	26,476	55,683
3	1,113	11,131	66,814			
4	,975	9,746	76,559			
5	,802	8,023	84,582			
6	,576	5,761	90,343			
7	,373	3,727	94,070			
8	,338	3,379	97,450			
9	,204	2,041	99,491			
10	,051	,509	100,000			



Component matrix

	Component	
	1	2
IN_PS1	,796	-,279
IN_PS4	,227	-,444
IN_PS5	,856	-,180
IN_PS8	,489	,277
IN_PS9_REV	-,798	,216
IN_EM1_REV	-,075	,832
IN_EM2	-,140	,713
IN_EM3_REV	,084	,898
IN_EM6_REV	,770	-,018
IN_EM7	,038	-,459



Component score coefficient matrix

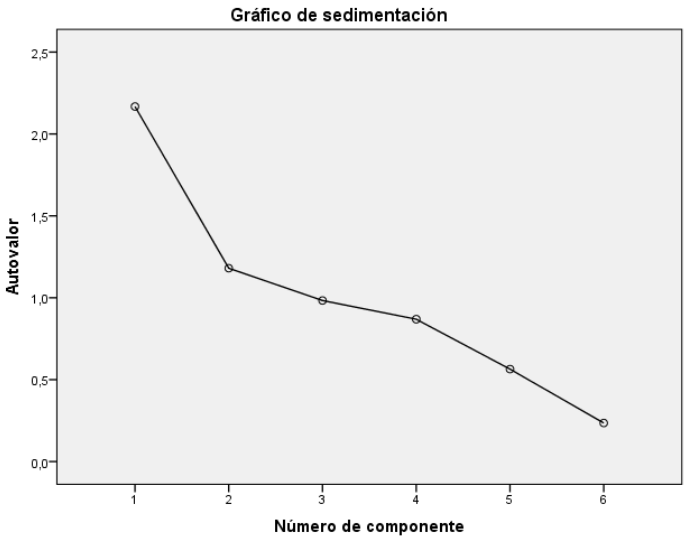
	Component	
	1	2
IN_PS1	,263	-,043
IN_PS4	,044	-,157
IN_PS5	,293	,002
IN_PS8	,200	,153
IN_PS9_REV	-,269	,017
IN_EM1_REV	,045	,325
IN_EM2	,011	,272
IN_EM3_REV	,108	,365
IN_EM6_REV	,277	,059
IN_EM7	-,026	-,179

It can be seen that a group of variables (PS1, PS4, PS5, PS8, EM6, EM7) contribute to development, while others (EM1, EM2, EM3, PS9) hinder it. Because of its meaning, variable EM6 is moved into the group of variables that hinder development, while EM2 is moved into the group that contribute to development.

The principal components analysis is run again with just the variables that contribute to development: PS1, PS4, PS5, PS8, EM2 and EM7.

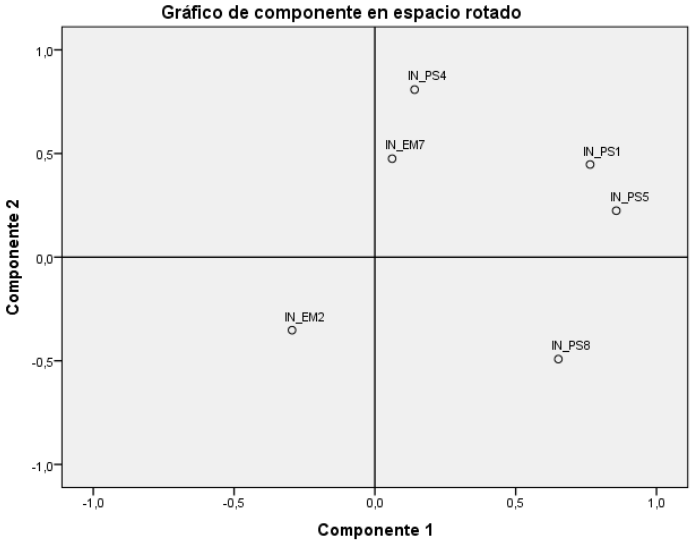
Total variance explained

	Initial eigenvalues			Extraction sums of squared loadings		
Component	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %
1	2,168	36,131	36,131	1,853	30,884	30,884
2	1,180	19,674	55,805	1,495	24,921	55,805
3	,983	16,386	72,191			
4	,869	14,483	86,674			
5	,564	9,405	96,079			
6	,235	3,921	100,000			



Component matrix

	Component	
	1	2
IN_PS1	,764	
IN_PS4		,808
IN_PS5	,857	
IN_PS8	,651	
IN_EM2		
IN_EM7		



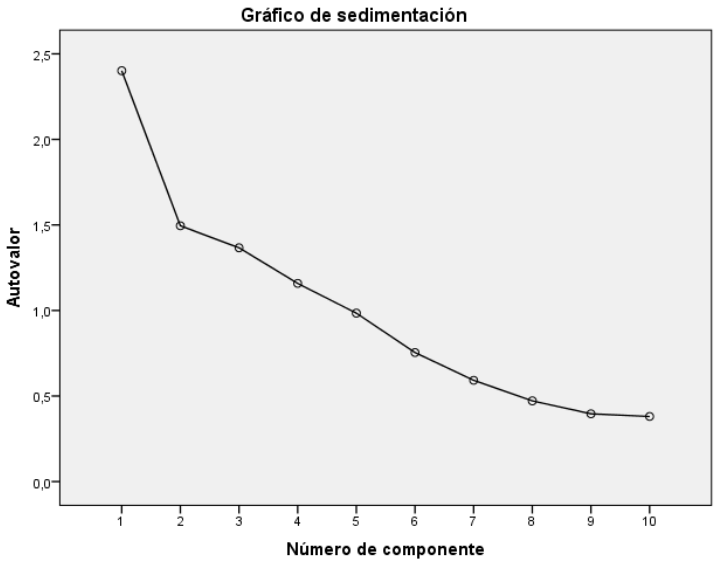
Component score coefficient matrix

	Component	
	1	2
IN_PS1	,366	,186
IN_PS4	-,063	,560
IN_PS5	,461	,008
IN_PS8	,469	-,473
IN_EM2	-,109	-,202
IN_EM7	-,050	,333

➢ "EQUALITY" POLICY

Total variance explained

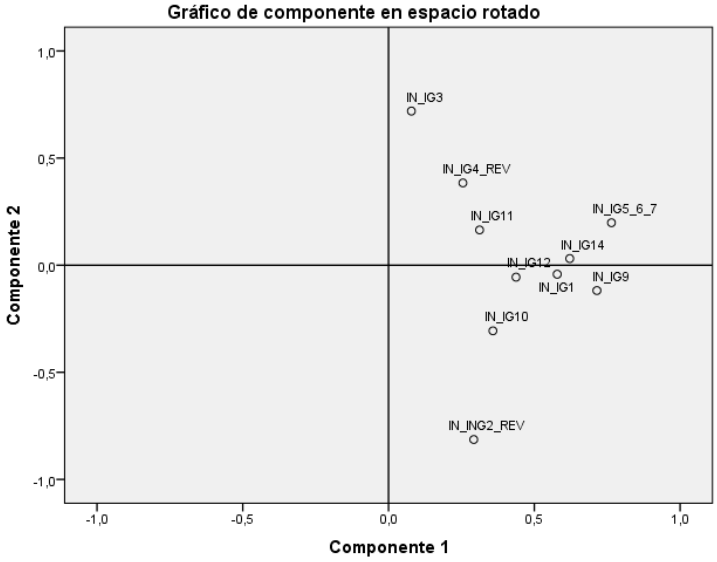
	Initial eigenvalues			Extraction sums of squared loadings		
Component	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %
1	2,401	24,013	24,013	2,389	23,891	23,891
2	1,495	14,952	38,965	1,507	15,073	38,965
3	1,367	13,665	52,630			
4	1,158	11,584	64,214			
5	,984	9,844	74,058			
6	,754	7,542	81,600			
7	,592	5,919	87,519			
8	,472	4,717	92,236			
9	,396	3,960	96,196			
10	,380	3,804	100,000			



Component matrix

	Component	
	1	2
IN_IG1	,578	-,042
IN_ING2_REV	,292	-,814
IN_IG3	,078	,719
IN_IG4_REV	,255	,384
IN_IG5_6_7	,765	,198
IN_IG9	,714	-,118
IN_IG10	,358	-,306
IN_IG11	,312	,165
IN_IG12	,437	-,056
IN_IG14	,621	,031

Gráfico de componente en espacio rotado



Component score coefficient matrix

	Component	
	1	2
IN_IG1	,242	-,011
IN_ING2_REV	,099	-,533
IN_IG3	,054	,481
IN_IG4_REV	,118	,263
IN_IG5_6_7	,327	,154
IN_IG9	,297	-,058
IN_IG10	,141	-,193
IN_IG11	,136	,119
IN_IG12	,182	-,025
IN_IG14	,262	,039

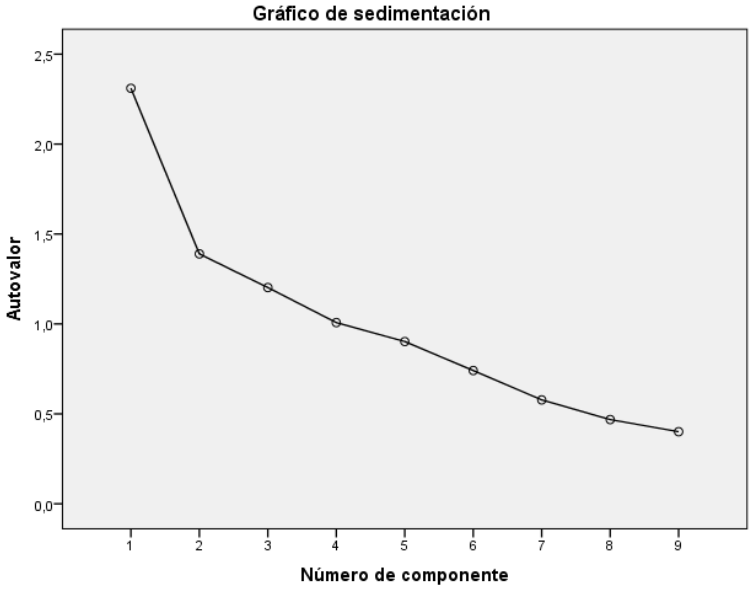
For this policy, the principal component analysis doesn't show any specific variable that contribute or hinder a country's development. Therefore the grouping of variables will be based on the meaning of each variable:

- Variables that contribute: IG1, IG3, IG5_6_7, IG8, IG9, IG10, IG11, IG12, IG14
- Variables that hinder: IG2, IG4

The principal component analysis is run again with the first group of variables.

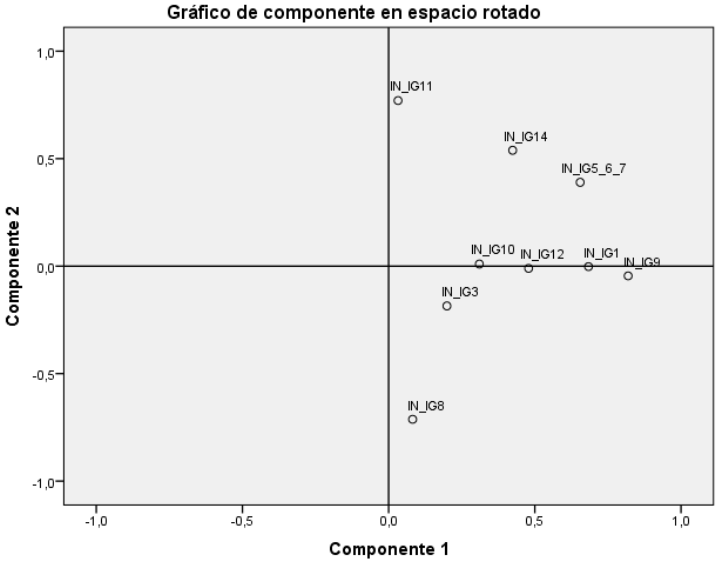
Total variance explained

Component	Initial eigenvalues			Extraction sums of squared loadings		
	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %
1	2,310	25,671	25,671	2,120	23,559	23,559
2	1,389	15,439	41,110	1,580	17,551	41,110
3	1,202	13,361	54,471			
4	1,008	11,196	65,666			
5	,902	10,023	75,690			
6	,741	8,232	83,922			
7	,578	6,420	90,342			
8	,468	5,204	95,546			
9	,401	4,454	100,000			



Component matrix

	Component	
	1	2
IN_IG1	,684	
IN_IG3		
IN_IG5_6_7	,655	
IN_IG8		-,713
IN_IG9	,819	
IN_IG10		
IN_IG11		,770
IN_IG12		
IN_IG14		,539



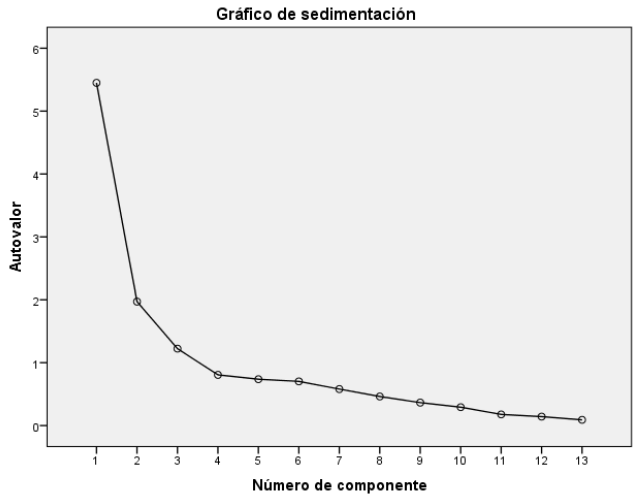
Component score coefficient matrix

	Component	
	1	2
IN_IG1	,337	-,081
IN_IG3	,120	-,145
IN_IG5_6_7	,277	,181
IN_IG8	,123	-,480
IN_IG9	,408	-,125
IN_IG10	,152	-,030
IN_IG11	-,074	,505
IN_IG12	,237	-,062
IN_IG14	,146	,307

The principal component analysis is run again with all the variables that contribute to development, which have come out in the first factor in the previous analysis by policy.

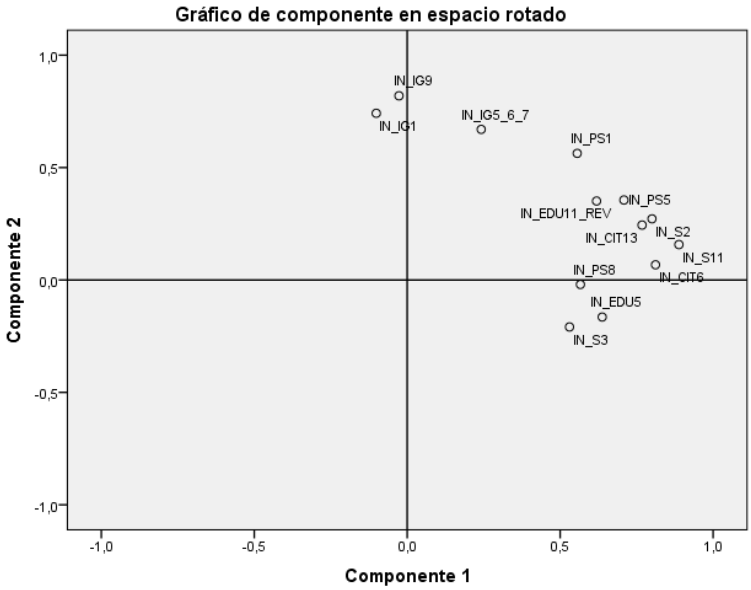
Total variance explained

Component	Initial eigenvalues			Extraction sums of squared loadings		
	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %
1	5,449	41,918	41,918	4,949	38,073	38,073
2	1,971	15,164	57,082	2,471	19,009	57,082
3	1,223	9,406	66,488			
4	,806	6,201	72,689			
5	,737	5,667	78,356			
6	,703	5,406	83,762			
7	,580	4,462	88,224			
8	,462	3,555	91,778			
9	,365	2,808	94,587			
10	,293	2,252	96,839			
11	,177	1,363	98,202			
12	,143	1,100	99,302			
13	,091	,698	100,000			



Component matrix

	Component	
	1	2
IN_EDU5	,637	
IN_EDU11_REV	,619	
IN_PS1	,556	,563
IN_PS5	,708	
IN_PS8	,566	
IN_IG1		,742
IN_IG5_6_7		,670
IN_IG9		,819
IN_S2	,800	
IN_S3	,530	
IN_S11	,888	
IN_CIT6	,812	
IN_CIT13	,768	



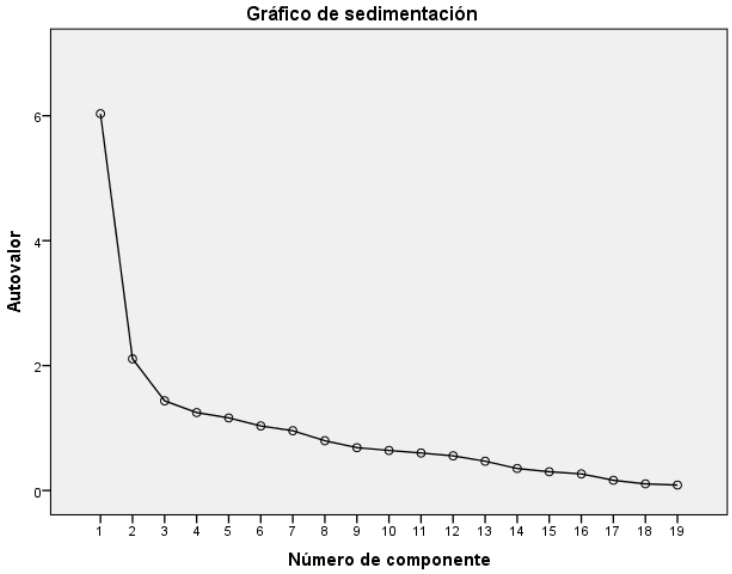
Component score coefficient matrix

	Component	
	1	2
IN_EDU5	,165	-,148
IN_EDU11_REV	,103	,091
IN_PS1	,064	,196
IN_PS5	,123	,083
IN_PS8	,132	-,073
IN_IG1	-,108	,353
IN_IG5_6_7	-,020	,281
IN_IG9	-,099	,381
IN_S2	,153	,034
IN_S3	,146	-,157
IN_S11	,186	-,028
IN_CIT6	,179	-,061
IN_CIT13	,149	,025

"Equality" policy ("IG" variables) is not enough represented among the final variables resulted from the principal component analysis, therefore the analysis is run again including this time all the "IG" variables.

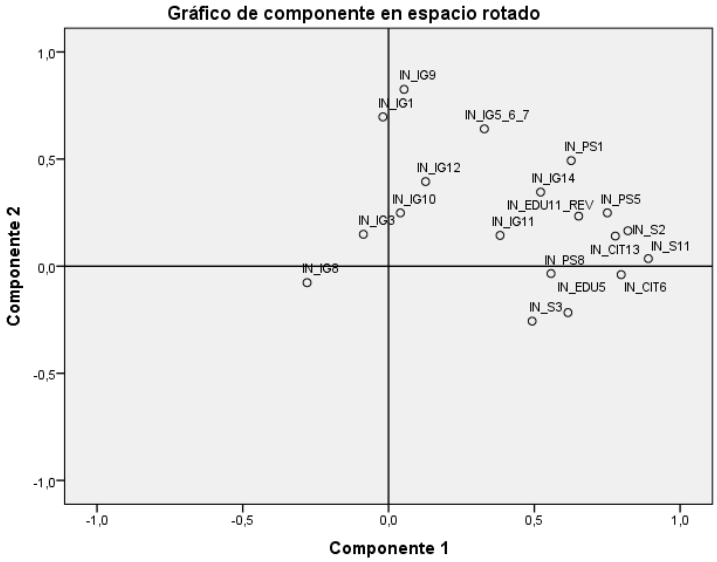
Total variance explained

	Initial eigenvalues			Extraction sums of squared loadings		
Component	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %
1	6,033	31,752	31,752	5,654	29,757	29,757
2	2,108	11,095	42,847	2,487	13,090	42,847
3	1,435	7,555	50,402			
4	1,248	6,567	56,969			
5	1,162	6,117	63,086			
6	1,034	5,442	68,528			
7	,957	5,038	73,566			
8	,797	4,194	77,760			
9	,686	3,611	81,371			
10	,641	3,376	84,747			
11	,600	3,160	87,907			
12	,555	2,920	90,827			
13	,469	2,467	93,294			
14	,352	1,854	95,148			
15	,300	1,577	96,725			
16	,265	1,397	98,122			
17	,164	,861	98,983			
18	,106	,558	99,541			
19	,087	,459	100,000			



Component matrix

	Component	
	1	2
IN_EDU5	,615	
IN_EDU11_REV	,652	
IN_PS1	,626	,493
IN_PS5	,750	
IN_PS8	,557	
IN_IG1		,697
IN_IG3		
IN_IG5_6_7	,328	,641
IN_IG8		
IN_IG9		,825
IN_IG10		
IN_IG11	,383	
IN_IG12		,395
IN_IG14	,522	,346
IN_S2	,821	
IN_S3	,492	
IN_S11	,891	
IN_CIT6	,798	
IN_CIT13	,778	



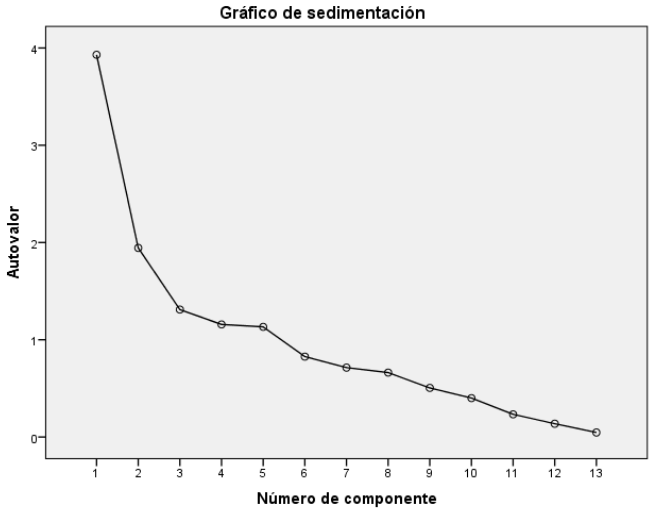
Component score coefficient matrix

	Component	
	1	2
IN_EDU5	,140	-,152
IN_EDU11_REV	,106	,044
IN_PS1	,078	,162
IN_PS5	,124	,042
IN_PS8	,112	-,066
IN_IG1	-,067	,312
IN_IG3	-,030	,074
IN_IG5_6_7	,006	,255
IN_IG8	-,048	-,009
IN_IG9	-,065	,362
IN_IG10	-,015	,107
IN_IG11	,062	,029
IN_IG12	-,011	,164
IN_IG14	,070	,106
IN_S2	,145	-,001
IN_S3	,120	-,159
IN_S11	,171	-,065
IN_CIT6	,160	-,090
IN_CIT13	,139	-,008

Finally, the analysis is run with all the variables that hinder the development which have come out in the first factor in the previous analysis by policy.

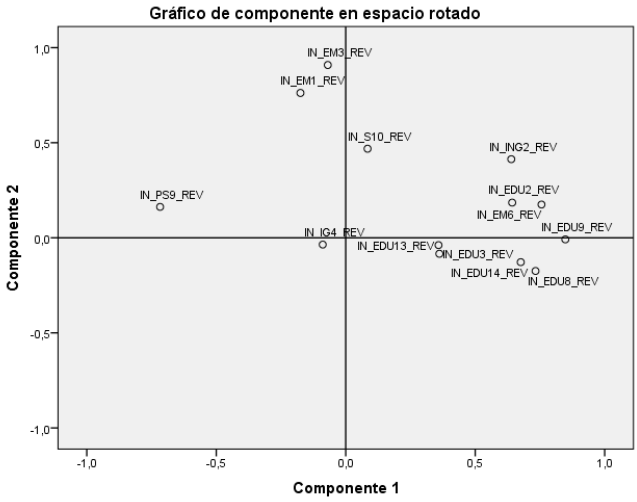
Total variance explained

Component	Initial eigenvalues			Extraction sums of squared loadings		
	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %
1	3,930	30,231	30,231	3,930	30,229	30,229
2	1,944	14,957	45,188	1,945	14,959	45,188
3	1,310	10,080	55,268			
4	1,157	8,903	64,171			
5	1,133	8,712	72,883			
6	,827	6,360	79,242			
7	,714	5,490	84,732			
8	,663	5,097	89,829			
9	,505	3,885	93,714			
10	,400	3,079	96,793			
11	,234	1,796	98,590			
12	,137	1,051	99,641			
13	,047	,359	100,000			



Component matrix

	Component	
	1	2
IN_EDU2_REV	,643	
IN_EDU3_REV		
IN_EDU8_REV	,733	
IN_EDU9_REV	,848	
IN_EDU13_REV		
IN_EDU14_REV	,676	
IN_PS9_REV	-,717	
IN_ING2_REV	,639	
IN_IG4_REV		
IN_S10_REV		
IN_EM1_REV		,762
IN_EM3_REV		,909
IN_EM6_REV	,756	



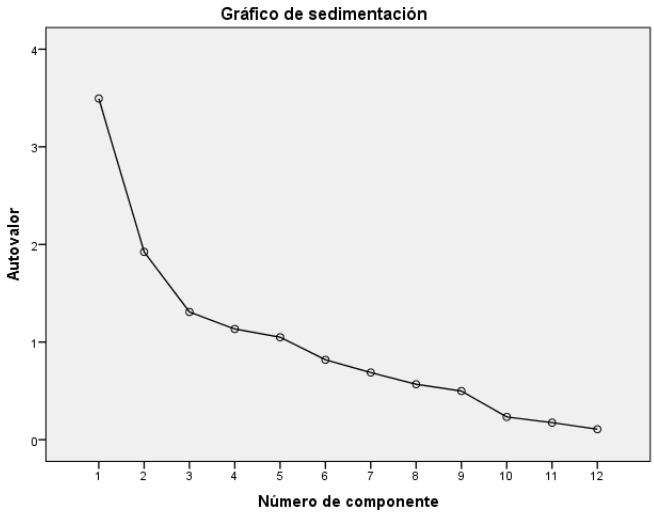
Component score coefficient matrix

	Component	
	1	2
IN_EDU2_REV	,164	,097
IN_EDU3_REV	,092	-,042
IN_EDU8_REV	,186	-,088
IN_EDU9_REV	,216	-,002
IN_EDU13_REV	,091	-,019
IN_EDU14_REV	,172	-,064
IN_PS9_REV	-,182	,082
IN_ING2_REV	,164	,214
IN_IG4_REV	-,023	-,019
IN_S10_REV	,023	,241
IN_EM1_REV	-,042	,391
IN_EM3_REV	-,015	,467
IN_EM6_REV	,193	,092

The analysis is run again with the same variables except PS9, as it shows a negative weight.

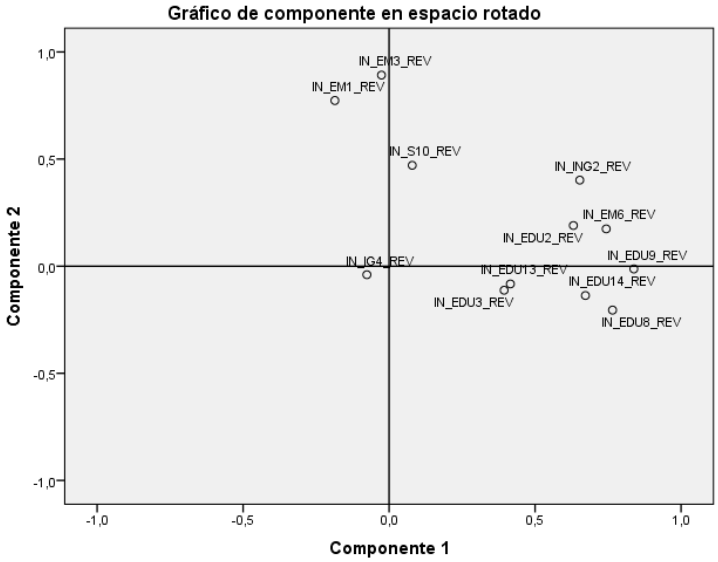
Total variance explained

	Initial eigenvalues			Extraction sums of squared loadings		
Component	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %
1	3,495	29,124	29,124	3,493	29,112	29,112
2	1,924	16,033	45,157	1,925	16,045	45,157
3	1,308	10,904	56,061			
4	1,134	9,452	65,512			
5	1,050	8,748	74,260			
6	,819	6,822	81,083			
7	,688	5,734	86,817			
8	,568	4,735	91,551			
9	,498	4,151	95,702			
10	,234	1,946	97,648			
11	,175	1,458	99,105			
12	,107	,895	100,000			



Component matrix

	Component	
	1	2
IN_EDU2_REV	,631	
IN_EDU3_REV		
IN_EDU8_REV	,765	
IN_EDU9_REV	,838	
IN_EDU13_REV		
IN_EDU14_REV	,672	
IN_ING2_REV	,653	
IN_IG4_REV		
IN_S10_REV		
IN_EM1_REV		,773
IN_EM3_REV		,892
IN_EM6_REV	,744	



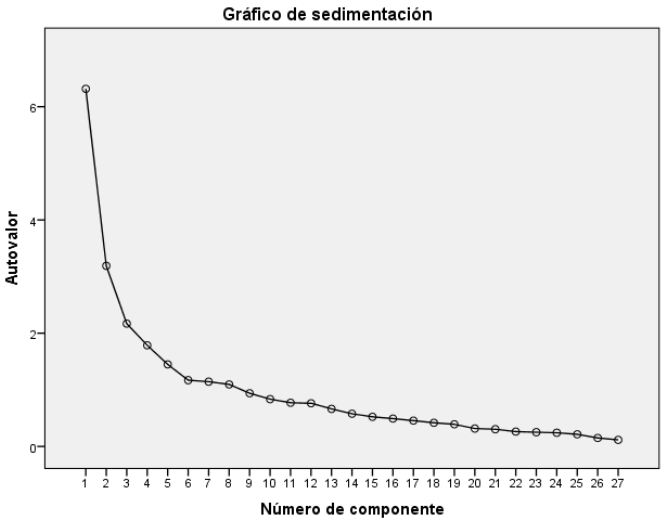
Component score coefficient matrix

	Component	
	1	2
IN_EDU2_REV	,179	,094
IN_EDU3_REV	,114	-,061
IN_EDU8_REV	,221	-,112
IN_EDU9_REV	,240	-,012
IN_EDU13_REV	,120	-,046
IN_EDU14_REV	,193	-,076
IN_ING2_REV	,184	,204
IN_IG4_REV	-,022	-,020
IN_S10_REV	,019	,244
IN_EM1_REV	-,059	,403
IN_EM3_REV	-,014	,464
IN_EM6_REV	,212	,085

C.3 Global block

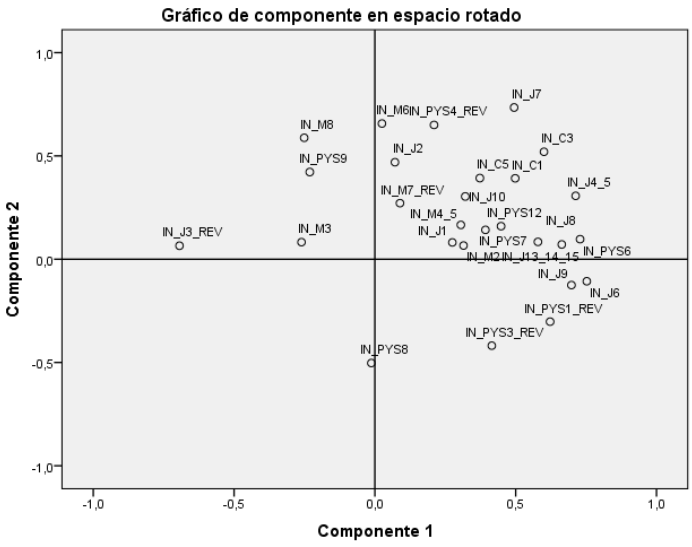
Total variance explained

Component	Initial eigenvalues			Extraction sums of squared loadings		
	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %
1	6,316	23,394	23,394	5,868	21,733	21,733
2	3,190	11,814	35,207	3,638	13,474	35,207
3	2,169	8,033	43,240			
4	1,785	6,613	49,853			
5	1,449	5,367	55,220			
6	1,170	4,333	59,553			
7	1,144	4,237	63,789			
8	1,095	4,057	67,846			
9	,939	3,479	71,325			
10	,835	3,094	74,419			
11	,772	2,858	77,277			
12	,763	2,824	80,102			
13	,663	2,455	82,556			
14	,577	2,138	84,694			
15	,523	1,938	86,632			
16	,492	1,821	88,452			
17	,456	1,690	90,143			
18	,417	1,545	91,688			
19	,390	1,446	93,134			
20	,316	1,169	94,303			
21	,304	1,126	95,429			
22	,262	,969	96,399			
23	,251	,931	97,329			
24	,242	,896	98,225			
25	,214	,794	99,019			
26	,149	,553	99,572			
27	,115	,428	100,000			



Component matrix

	Component	
	1	2
IN_J1	,275	,081
IN_J2	,071	,469
IN_J3_REV	-,694	,065
IN_J4_5	,713	,307
IN_J6	,752	-,107
IN_J7	,494	,735
IN_J8	,663	,071
IN_J9	,698	-,125
IN_J10	,321	,304
IN_J13_14_15	,579	,084
IN_PYS1_REV	,622	-,302
IN_PYS3_REV	,415	-,419
IN_PYS4_REV	,210	,650
IN_PYS6	,729	,097
IN_PYS7	,393	,142
IN_PYS8	-,013	-,503
IN_PYS9	-,231	,422
IN_PYS12	,448	,160
IN_M2	,315	,066
IN_M3	-,261	,082
IN_M4_5	,305	,166
IN_M6	,025	,657
IN_M7_REV	,089	,271
IN_M8	-,251	,588
IN_C1	,498	,392
IN_C3	,600	,520
IN_C5	,373	,393



Component score coefficient matrix

	Component	
	1	2
IN_J1	,045	,009
IN_J2	-,013	,133
IN_J3_REV	-,129	,057
IN_J4_5	,112	,051
IN_J6	,142	-,072
IN_J7	,049	,187
IN_J8	,116	-,015
IN_J9	,133	-,074
IN_J10	,041	,071
IN_J13_14_15	,100	-,007
IN_PYS1_REV	,129	-,122
IN_PYS3_REV	,098	-,145
IN_PYS4_REV	,003	,178
IN_PYS6	,126	-,011
IN_PYS7	,063	,020
IN_PYS8	,025	-,146
IN_PYS9	-,065	,135
IN_PYS12	,072	,022
IN_M2	,053	,002
IN_M3	-,052	,038
IN_M4_5	,046	,032
IN_M6	-,031	,190
IN_M7_REV	,001	,074
IN_M8	-,077	,185
IN_C1	,069	,087

IN_C3	,080	,119
IN_C5	,046	,094

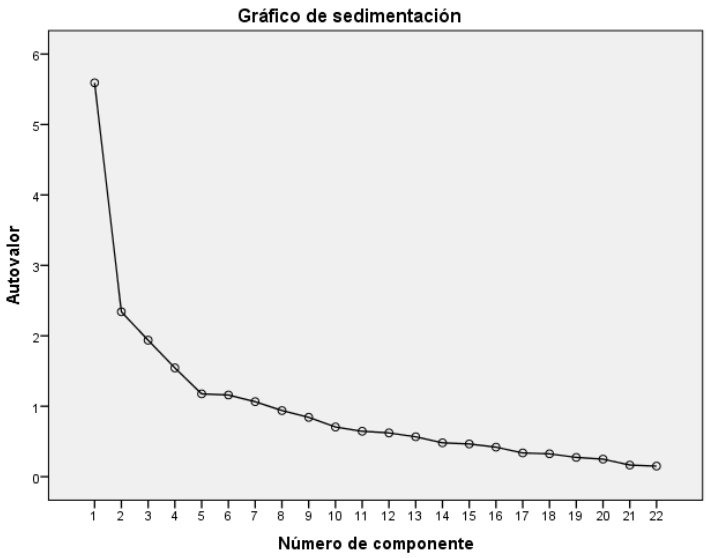
For this block, the principal component analysis doesn't show any specific variable that contribute or hinder a country's development. Therefore the grouping of variables will be based on the meaning of each variable:

- Variables that contribute: J1, J2, J4, J5, J6, J7, J8, J9, J10, J13_14_15, PYS6, PYS7, PYS8, PYS12, M2, M3, M4_5, M6, M8, C1, C3, C5
- Variables that hinder: J3, PYS1, PYS3, PYS4, PYS9, M7

The principal component analysis is run again with the first group of variables.

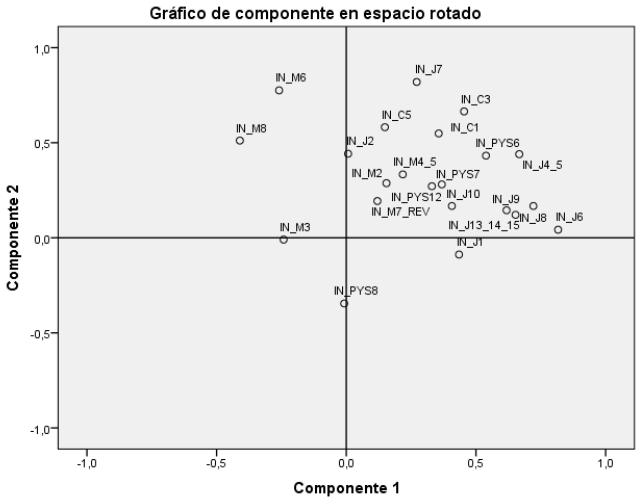
Total variance explained

	Initial eigenvalues			Extraction sums of squared loadings		
Component	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %
1	5,592	25,420	25,420	4,138	18,809	18,809
2	2,341	10,642	36,062	3,796	17,252	36,062
3	1,938	8,808	44,870			
4	1,544	7,020	51,890			
5	1,176	5,344	57,234			
6	1,160	5,272	62,506			
7	1,065	4,842	67,348			
8	,939	4,268	71,616			
9	,843	3,830	75,447			
10	,706	3,208	78,655			
11	,644	2,929	81,584			
12	,622	2,826	84,410			
13	,567	2,575	86,985			
14	,480	2,184	89,169			
15	,465	2,112	91,281			
16	,419	1,906	93,187			
17	,337	1,531	94,718			
18	,324	1,475	96,193			
19	,274	1,244	97,436			
20	,249	1,133	98,569			
21	,165	,749	99,318			
22	,150	,682	100,000			



Component matrix[a]

	Component	
	1	2
IN_J1	,435	-,088
IN_J2	,007	,442
IN_J4_5	,667	,440
IN_J6	,817	,042
IN_J7	,272	,820
IN_J8	,721	,167
IN_J9	,618	,145
IN_J10	,407	,167
IN_J13_14_15	,653	,121
IN_PYS6	,539	,432
IN_PYS7	,330	,271
IN_PYS8	-,008	-,346
IN_PYS12	,368	,281
IN_M2	,155	,287
IN_M3	-,242	-,009
IN_M4_5	,218	,333
IN_M6	-,259	,776
IN_M7_REV	,120	,193
IN_M8	-,410	,511
IN_C1	,356	,549
IN_C3	,454	,665
IN_C5	,149	,582



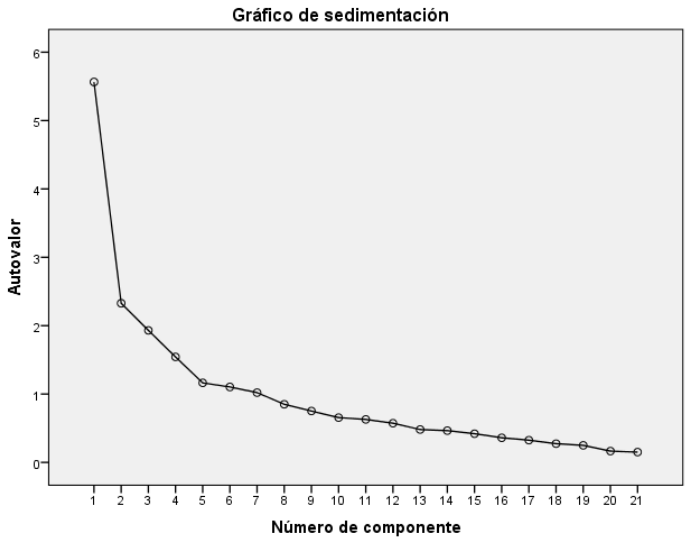
Component score coefficient matrix

	Component	
	1	2
IN_J1	,137	-,081
IN_J2	-,053	,139
IN_J4_5	,139	,057
IN_J6	,231	-,087
IN_J7	-,022	,226
IN_J8	,188	-,036
IN_J9	,161	-,031
IN_J10	,097	,003
IN_J13_14_15	,174	-,042
IN_PYS6	,103	,070
IN_PYS7	,062	,045
IN_PYS8	,040	-,108
IN_PYS12	,072	,043
IN_M2	,009	,072
IN_M3	-,069	,027
IN_M4_5	,022	,078
IN_M6	-,171	,277
IN_M7_REV	,011	,046
IN_M8	-,182	,212
IN_C1	,036	,129
IN_C3	,050	,154
IN_C5	-,029	,166

Variable M3 shows a negative weight therefore it is excluded from the analysis.

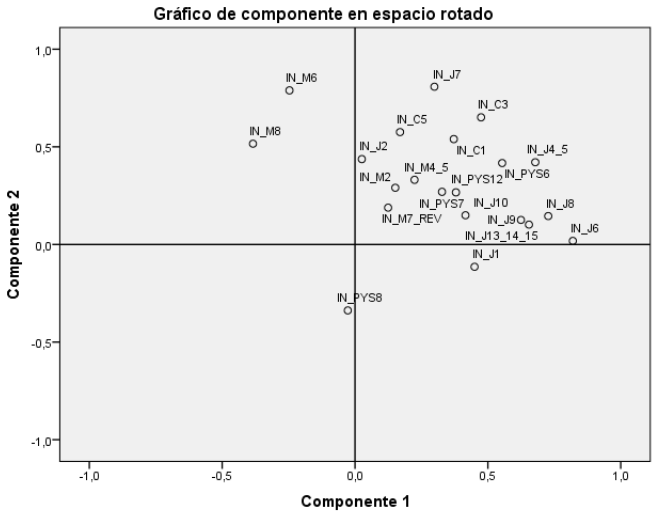
Total variance explained

Component	Initial eigenvalues			Extraction sums of squared loadings		
	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %
1	5,564	26,495	26,495	4,191	19,959	19,959
2	2,328	11,084	37,578	3,700	17,620	37,578
3	1,931	9,197	46,776			
4	1,543	7,346	54,122			
5	1,163	5,540	59,662			
6	1,104	5,255	64,917			
7	1,020	4,858	69,775			
8	,850	4,049	73,824			
9	,751	3,577	77,401			
10	,655	3,120	80,520			
11	,628	2,991	83,512			
12	,573	2,729	86,241			
13	,481	2,288	88,529			
14	,465	2,213	90,742			
15	,420	1,999	92,741			
16	,360	1,716	94,457			
17	,325	1,548	96,005			
18	,274	1,306	97,311			
19	,249	1,187	98,498			
20	,165	,787	99,285			
21	,150	,715	100,000			



Component matrix

	Component	
	1	2
IN_J1	,450	-,114
IN_J2	,026	,437
IN_J4_5	,678	,421
IN_J6	,820	,018
IN_J7	,299	,808
IN_J8	,727	,145
IN_J9	,624	,126
IN_J10	,416	,149
IN_J13_14_15	,655	,101
IN_PYS6	,554	,417
IN_PYS7	,327	,269
IN_PYS8	-,027	-,338
IN_PYS12	,380	,267
IN_M2	,152	,291
IN_M4_5	,224	,331
IN_M6	-,247	,789
IN_M7_REV	,125	,188
IN_M8	-,384	,516
IN_C1	,372	,540
IN_C3	,474	,651
IN_C5	,169	,576



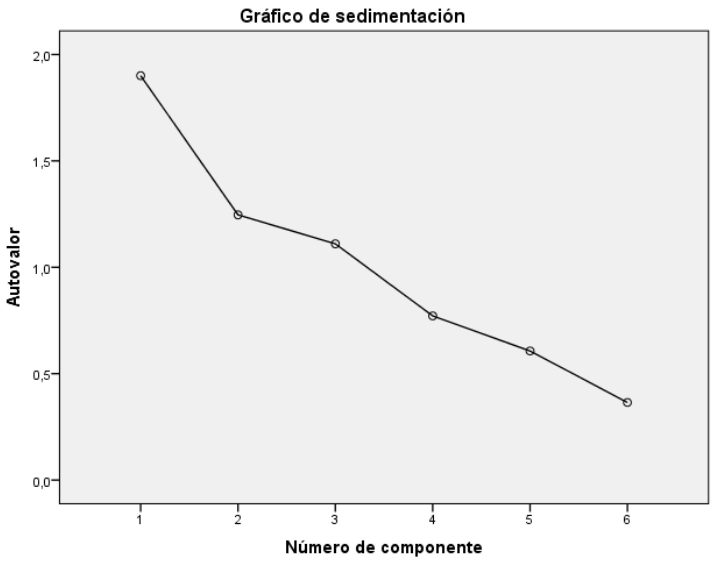
Component score coefficient matrix

	Component	
	1	2
IN_J1	,143	-,093
IN_J2	-,047	,138
IN_J4_5	,142	,053
IN_J6	,232	-,095
IN_J7	-,014	,225
IN_J8	,190	-,043
IN_J9	,163	-,036
IN_J10	,100	-,003
IN_J13_14_15	,174	-,048
IN_PYS6	,107	,067
IN_PYS7	,060	,047
IN_PYS8	,034	-,106
IN_PYS12	,076	,039
IN_M2	,007	,075
IN_M4_5	,023	,080
IN_M6	-,168	,286
IN_M7_REV	,012	,046
IN_M8	-,173	,214
IN_C1	,040	,129
IN_C3	,055	,152
IN_C5	-,023	,165

The principal components analysis is run with the group of variables that hinder development.

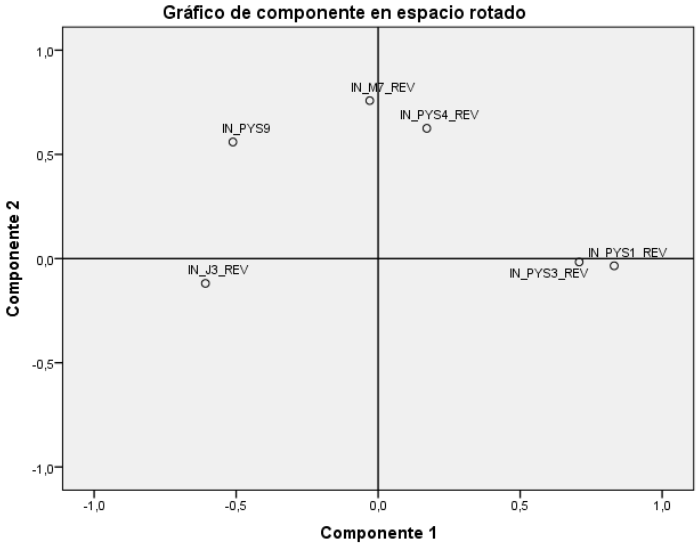
Total variance explained

	Initial eigenvalues			Extraction sums of squared loadings		
Component	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %
1	1,901	31,676	31,676	1,853	30,885	30,885
2	1,246	20,771	52,447	1,294	21,562	52,447
3	1,110	18,506	70,953			
4	,772	12,859	83,812			
5	,607	10,111	93,923			
6	,365	6,077	100,000			



Component matrix[a]

	Component	
	1	2
IN_J3_REV	-,608	
IN_PYS1_REV	,831	
IN_PYS3_REV	,708	
IN_PYS4_REV		,625
IN_PYS9	-,512	,559
IN_M7_REV		,758



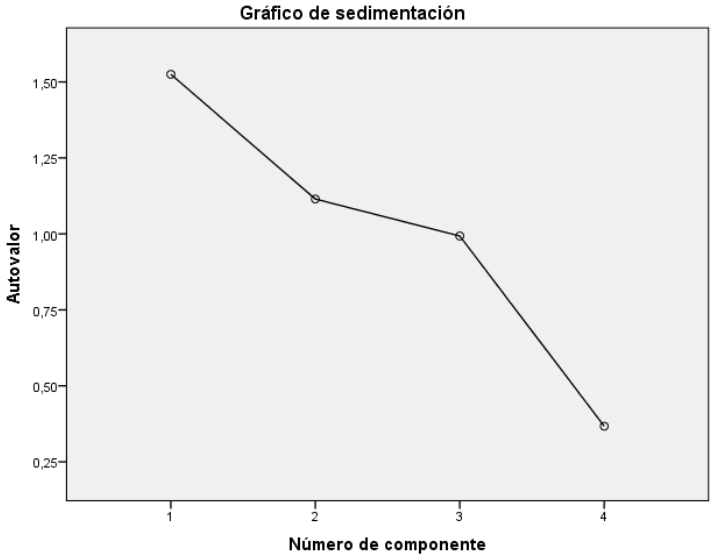
Component score coefficient matrix

	Component	
	1	2
IN_J3_REV	-,341	-,137
IN_PYS1_REV	,451	,032
IN_PYS3_REV	,385	,038
IN_PYS4_REV	,138	,501
IN_PYS9	-,239	,401
IN_M7_REV	,038	,591

Variables J3 and PYS9 show a negative weight therefore they are excluded from the analysis.

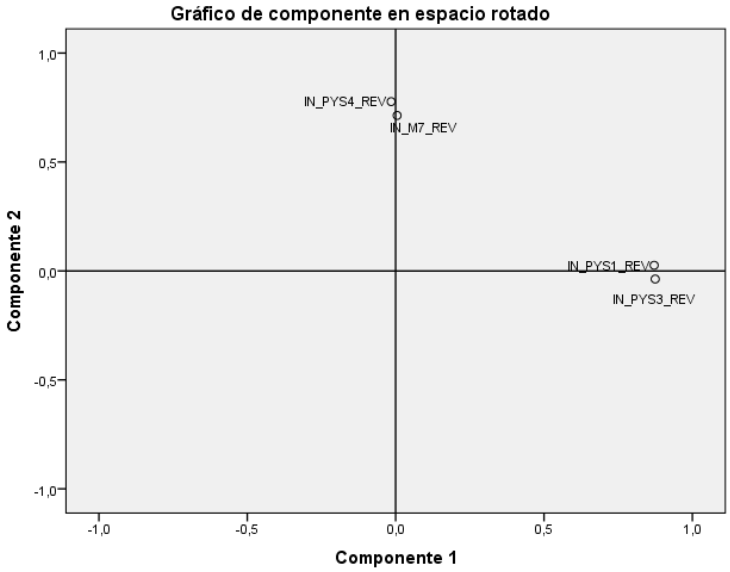
Total variance explained

	Initial eigenvalues			Extraction sums of squared loadings		
Component	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %
1	1,525	38,125	38,125	1,524	38,105	38,105
2	1,115	27,869	65,994	1,116	27,889	65,994
3	,993	24,824	90,818			
4	,367	9,182	100,000			



Component matrix

	Component	
	1	2
IN_PYS1_REV	,871	
IN_PYS3_REV	,875	
IN_PYS4_REV		,777
IN_M7_REV		,714



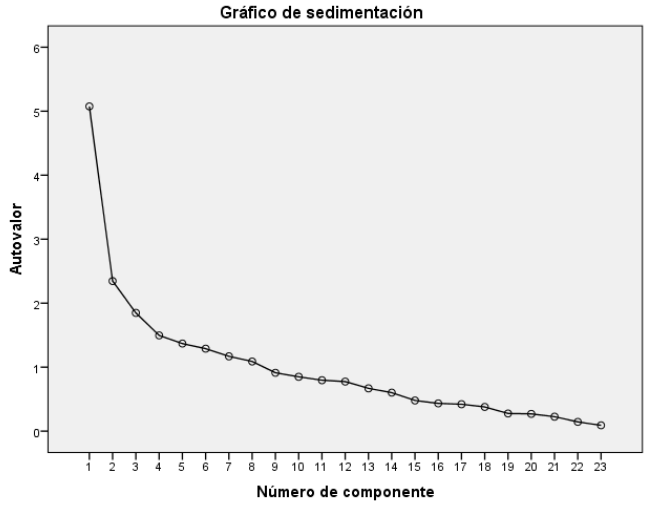
Component score coefficient matrix

	Component	
	1	2
IN_PYS1_REV	,572	,033
IN_PYS3_REV	,574	-,024
IN_PYS4_REV	-,002	,697
IN_M7_REV	,011	,640

C.4 Environmental block

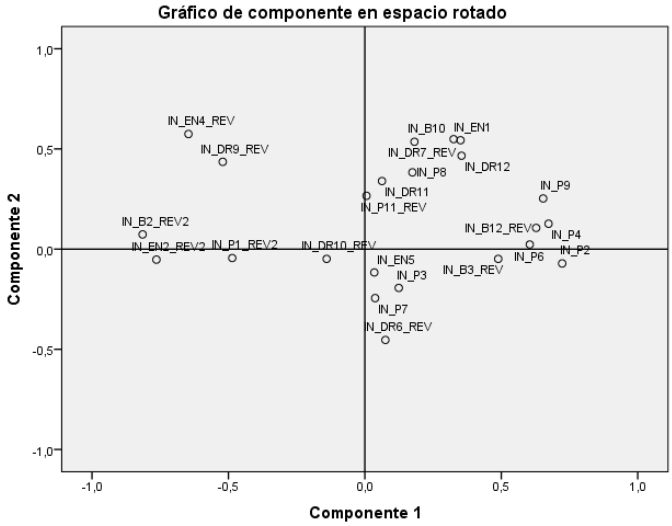
Total variance explained

Component	Initial eigenvalues			Extraction sums of squared loadings		
	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %
1	5,075	22,067	22,067	5,038	21,906	21,906
2	2,346	10,198	32,265	2,383	10,359	32,265
3	1,848	8,033	40,298			
4	1,496	6,505	46,803			
5	1,369	5,951	52,754			
6	1,289	5,603	58,356			
7	1,169	5,083	63,439			
8	1,088	4,733	68,172			
9	,912	3,966	72,138			
10	,849	3,693	75,831			
11	,796	3,459	79,290			
12	,774	3,367	82,657			
13	,669	2,908	85,565			
14	,602	2,617	88,182			
15	,479	2,085	90,266			
16	,434	1,886	92,152			
17	,421	1,829	93,981			
18	,378	1,643	95,624			
19	,276	1,201	96,825			
20	,269	1,172	97,997			
21	,226	,982	98,978			
22	,144	,627	99,605			
23	,091	,395	100,000			



Component matrix

	Component	
	1	2
IN_P1_REV2	-,486	-,045
IN_P2	,723	-,072
IN_P3	,124	-,194
IN_P4	,673	,127
IN_P6	,604	,023
IN_P7	,038	-,245
IN_P8	,174	,383
IN_P9	,653	,253
IN_P11_REV	,006	,266
IN_DR6_REV	,075	-,454
IN_DR7_REV	,325	,549
IN_DR9_REV	-,521	,436
IN_DR10_REV	-,140	-,049
IN_DR11	,063	,340
IN_DR12	,354	,466
IN_B2_REV2	-,815	,073
IN_B3_REV	,489	-,049
IN_B10	,182	,536
IN_B12_REV	,628	,106
IN_EN1	,351	,543
IN_EN2_REV2	-,764	-,053
IN_EN4_REV	-,647	,575
IN_EN5	,035	-,116



Component score coefficient matrix

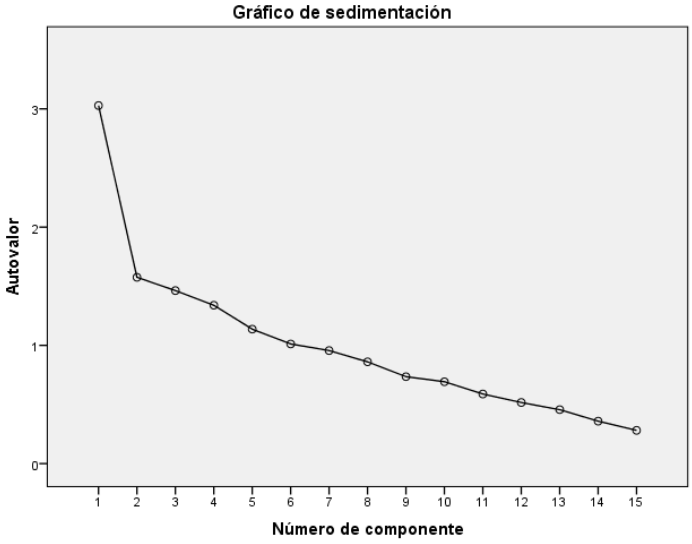
	Component	
	1	2
IN_P1_REV2	-,096	-,006
IN_P2	,147	-,050
IN_P3	,030	-,085
IN_P4	,131	,036
IN_P6	,120	-,006
IN_P7	,014	-,105
IN_P8	,025	,157
IN_P9	,124	,090
IN_P11_REV	-,006	,112
IN_DR6_REV	,027	-,194
IN_DR7_REV	,051	,224
IN_DR9_REV	-,116	,198
IN_DR10_REV	-,027	-,017
IN_DR11	,004	,142
IN_DR12	,059	,188
IN_B2_REV2	-,165	,053
IN_B3_REV	,099	-,034
IN_B10	,022	,222
IN_B12_REV	,123	,028
IN_EN1	,056	,221
IN_EN2_REV2	-,151	-,002
IN_EN4_REV	-,145	,260
IN_EN5	,010	-,050

It can be seen that a group of variables contribute to development, while others (P1, EN2, EN4, B2, DR9 and DR10) hinder it. Because of their meaning, variable B3 and B12 are moved into the group of variables that hinder development.

The principal components analysis is run again with just the variables that contribute to development.

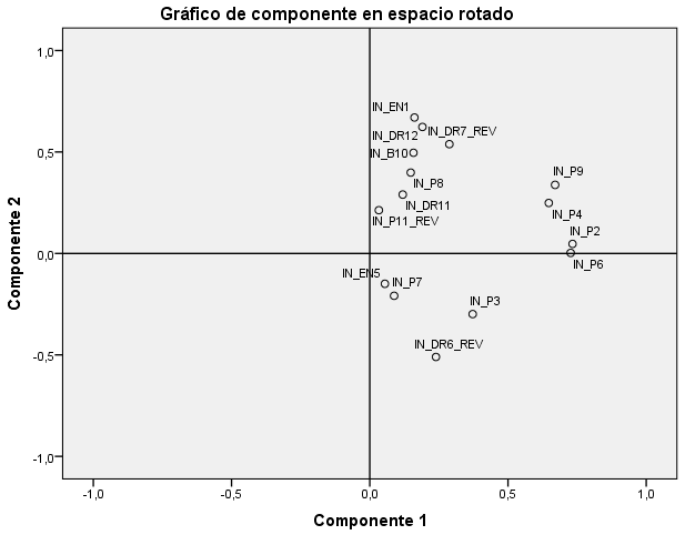
Total variance explained

Component	Initial eigenvalues			Extraction sums of squared loadings		
	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %
1	3,028	20,188	20,188	2,348	15,655	15,655
2	1,575	10,503	30,691	2,255	15,036	30,691
3	1,463	9,754	40,446			
4	1,339	8,928	49,374			
5	1,137	7,580	56,954			
6	1,012	6,745	63,698			
7	,956	6,371	70,070			
8	,861	5,739	75,809			
9	,735	4,901	80,710			
10	,692	4,616	85,326			
11	,589	3,924	89,250			
12	,517	3,445	92,694			
13	,456	3,040	95,734			
14	,359	2,392	98,127			
15	,281	1,873	100,000			



Component matrix

	Component	
	1	2
IN_P2	,733	
IN_P3		
IN_P4	,647	
IN_P6	,727	
IN_P7		
IN_P8		
IN_P9	,670	
IN_P11_REV		
IN_DR6_REV		-,510
IN_DR7_REV		,538
IN_DR11		
IN_DR12		,623
IN_B10		
IN_EN1		,670
IN_EN5		



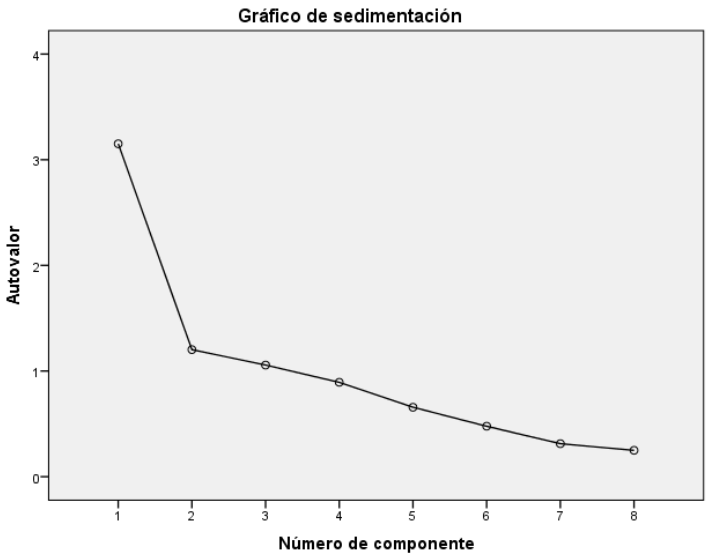
Component score coefficient matrix

	Component	
	1	2
IN_P2	,340	-,088
IN_P3	,221	-,204
IN_P4	,268	,024
IN_P6	,343	-,109
IN_P7	,073	-,116
IN_P8	,009	,174
IN_P9	,266	,064
IN_P11_REV	-,017	,100
IN_DR6_REV	,191	-,287
IN_DR7_REV	,054	,221
IN_DR11	,012	,125
IN_DR12	-,005	,278
IN_B10	-,001	,220
IN_EN1	-,025	,305
IN_EN5	,048	-,082

The principal component analysis is now run with the variables that hinder development: P1, EN2, EN4, B2, B3, B12, DR9 and DR10.

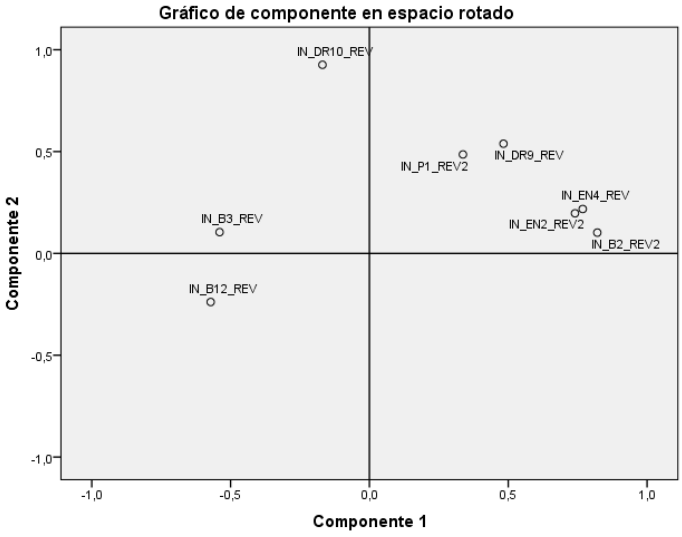
Total variance explained

	Initial eigenvalues			Extraction sums of squared loadings		
Component	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %
1	3,151	39,390	39,390	2,806	35,070	35,070
2	1,203	15,032	54,422	1,548	19,351	54,422
3	1,057	13,207	67,628			
4	,893	11,164	78,792			
5	,657	8,218	87,010			
6	,478	5,972	92,982			
7	,312	3,903	96,886			
8	,249	3,114	100,000			



Component matrix

	Component	
	1	2
IN_P1_REV2		
IN_DR9_REV		,539
IN_DR10_REV		,926
IN_B2_REV2	,821	
IN_B3_REV	-,540	
IN_B12_REV	-,572	
IN_EN2_REV2	,741	
IN_EN4_REV	,768	



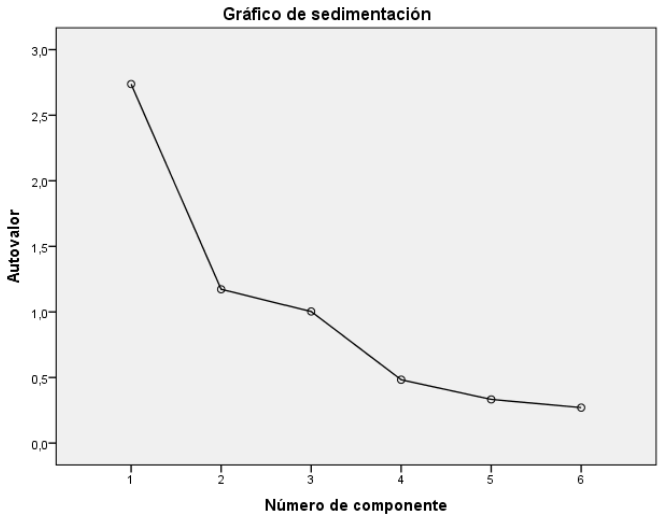
Component score coefficient matrix

	Component	
	1	2
IN_P1_REV2	,042	,294
IN_DR9_REV	,091	,304
IN_DR10_REV	-,251	,719
IN_B2_REV2	,315	-,086
IN_B3_REV	-,241	,183
IN_B12_REV	-,187	-,064
IN_EN2_REV2	,264	,000
IN_EN4_REV	,271	,010

Variables B3 and B12 shows negative weights, therefore they are excluded from the analysis.

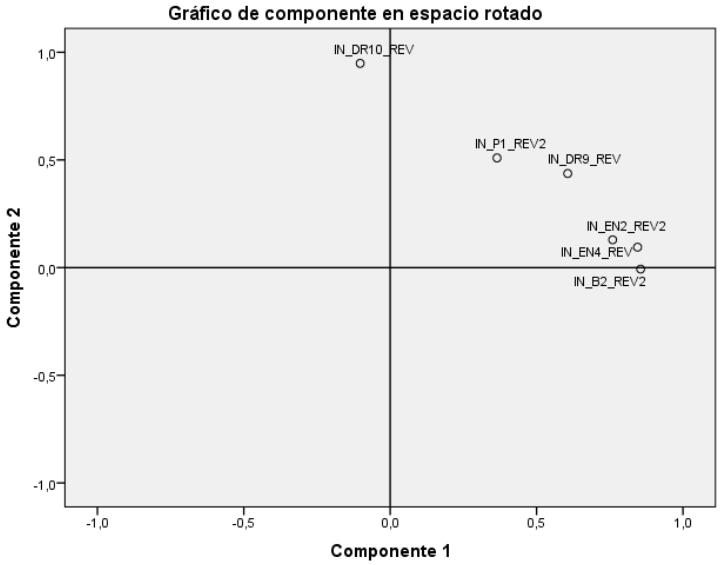
Total variance explained

	Initial eigenvalues			Extraction sums of squared loadings		
Component	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %
1	2,738	45,627	45,627	2,535	42,243	42,243
2	1,173	19,543	65,170	1,376	22,926	65,170
3	1,003	16,722	81,892			
4	,483	8,048	89,940			
5	,333	5,551	95,491			
6	,271	4,509	100,000			



Component matrix

	Component	
	1	2
IN_P1_REV2		,509
IN_DR9_REV	,606	
IN_DR10_REV		,948
IN_B2_REV2	,855	
IN_EN2_REV2	,760	
IN_EN4_REV	,845	



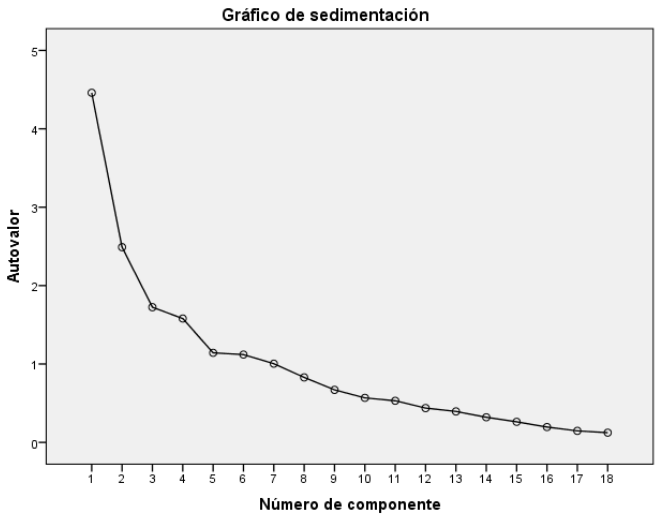
Component score coefficient matrix

	Component	
	1	2
IN_P1_REV2	,073	,343
IN_DR9_REV	,188	,246
IN_DR10_REV	-,199	,766
IN_B2_REV2	,368	-,146
IN_EN2_REV2	,304	-,022
IN_EN4_REV	,347	-,064

C.5 Industry and infrastructures block

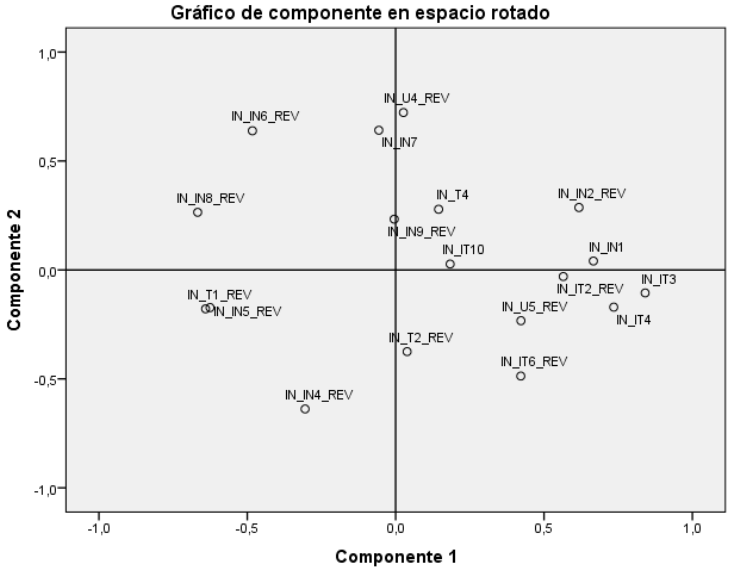
Total variance explained

Component	Initial eigenvalues			Extraction sums of squared loadings		
	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %
1	4,460	24,777	24,777	4,381	24,339	24,339
2	2,490	13,836	38,613	2,569	14,274	38,613
3	1,725	9,582	48,195			
4	1,580	8,778	56,973			
5	1,142	6,346	63,319			
6	1,120	6,223	69,541			
7	1,004	5,576	75,117			
8	,829	4,604	79,720			
9	,670	3,723	83,444			
10	,568	3,154	86,598			
11	,531	2,950	89,548			
12	,437	2,431	91,979			
13	,395	2,194	94,172			
14	,320	1,780	95,952			
15	,262	1,457	97,409			
16	,195	1,085	98,494			
17	,147	,816	99,310			
18	,124	,690	100,000			



Component matrix

	Component	
	1	2
IN_U4_REV	,026	,722
IN_U5_REV	,422	-,233
IN_T1_REV	-,641	-,178
IN_T2_REV	,039	-,375
IN_T4	,145	,278
IN_IT2_REV	,565	-,030
IN_IT3	,841	-,106
IN_IT4	,735	-,171
IN_IT6_REV	,422	-,487
IN_IT10	,184	,027
IN_IN1	,666	,041
IN_IN2_REV	,618	,287
IN_IN4_REV	-,305	-,638
IN_IN5_REV	-,625	-,173
IN_IN6_REV	-,483	,639
IN_IN8_REV	-,667	,264
IN_IN9_REV	-,005	,233
IN_IN7	-,057	,641



Component score coefficient matrix

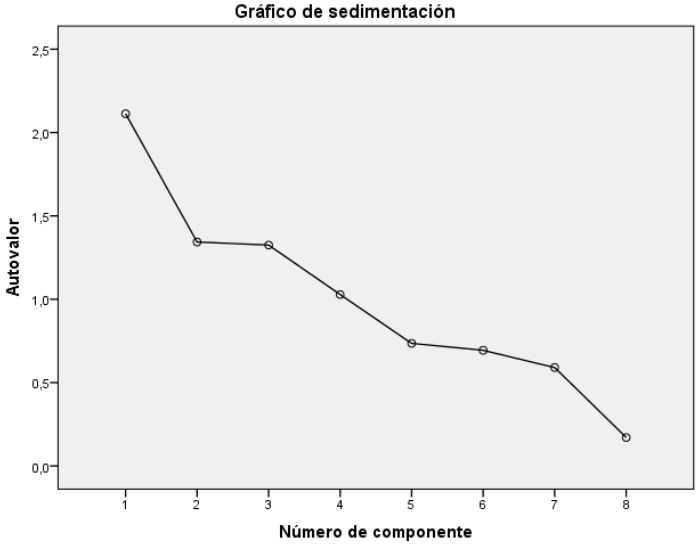
	Component	
	1	2
IN_U4_REV	,031	,286
IN_U5_REV	,090	-,077
IN_T1_REV	-,154	-,093
IN_T2_REV	-,004	-,147
IN_T4	,043	,115
IN_IT2_REV	,130	,008
IN_IT3	,191	-,012
IN_IT4	,164	-,042
IN_IT6_REV	,081	-,177
IN_IT10	,043	,017
IN_IN1	,156	,039
IN_IN2_REV	,153	,134
IN_IN4_REV	-,093	-,262
IN_IN5_REV	-,151	-,090
IN_IN6_REV	-,089	,235
IN_IN8_REV	-,145	,081
IN_IN9_REV	,007	,092
IN_IN7	,009	,251

It can be seen that a group of variables contribute to a country's development, while others (IN4, IN5, IN6, IN8 and T1) hinder it. Because of their meaning, variable U4, U5, IT2, IT6, IN2 are moved into the group of variables that hinder development.

The principal components analysis is run again with just the variables that contribute to development.

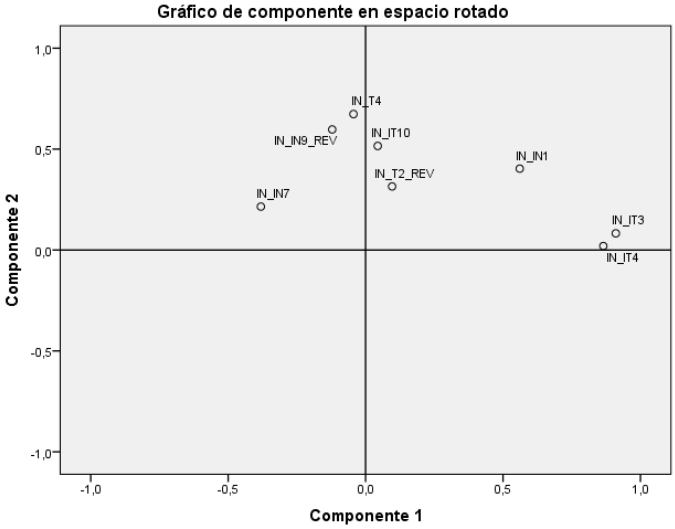
Total variance explained

	Initial eigenvalues			Extraction sums of squared loadings		
Component	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %
1	2,113	26,408	26,408	2,064	25,802	25,802
2	1,343	16,790	43,199	1,392	17,397	43,199
3	1,325	16,565	59,764			
4	1,028	12,854	72,618			
5	,735	9,193	81,811			
6	,694	8,673	90,484			
7	,591	7,382	97,866			
8	,171	2,134	100,000			



Component matrix

	Component	
	1	2
IN_T2_REV		
IN_T4		,674
IN_IT3	,910	
IN_IT4	,865	
IN_IT10		,516
IN_IN1	,561	
IN_IN9_REV		,597
IN_IN7		



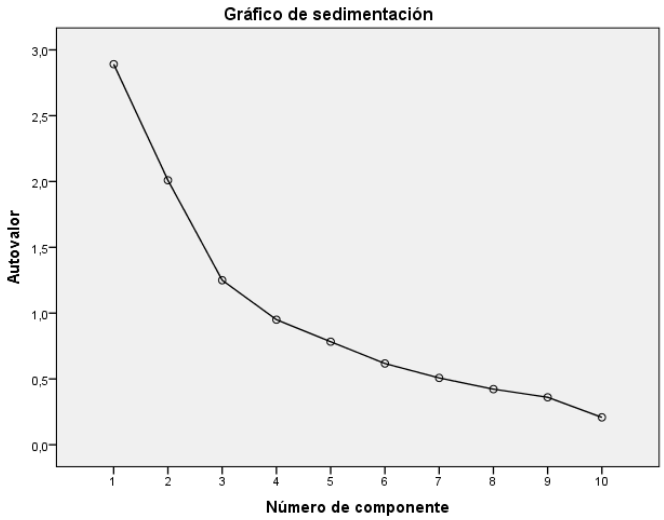
Component score coefficient matrix

	Component	
	1	2
IN_T2_REV	,026	,223
IN_T4	-,066	,493
IN_IT3	,441	,000
IN_IT4	,423	-,043
IN_IT10	-,012	,372
IN_IN1	,248	,256
IN_IN9_REV	-,099	,442
IN_IN7	-,201	,181

The principal component analysis is now run with the variables that hinder development: U4, U5, IT2, IT6, IN2, IN4, IN5, IN6, IN8 and T1.

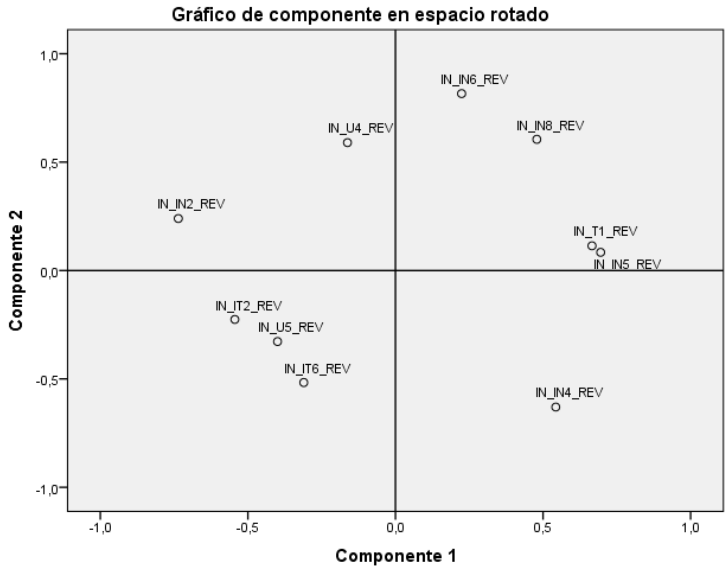
Total variance explained

	Initial eigenvalues			Extraction sums of squared loadings		
Component	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %
1	2,891	28,913	28,913	2,621	26,212	26,212
2	2,010	20,096	49,010	2,280	22,798	49,010
3	1,250	12,500	61,510			
4	,950	9,503	71,013			
5	,783	7,826	78,839			
6	,617	6,173	85,013			
7	,508	5,076	90,088			
8	,423	4,226	94,315			
9	,360	3,605	97,920			
10	,208	2,080	100,000			



Component matrix

	Component	
	1	2
IN_U4_REV		,590
IN_U5_REV		
IN_T1_REV	,666	
IN_IT2_REV	-,544	
IN_IT6_REV		-,517
IN_IN2_REV	-,736	
IN_IN4_REV	,543	-,630
IN_IN5_REV	,695	
IN_IN6_REV		,816
IN_IN8_REV		,605



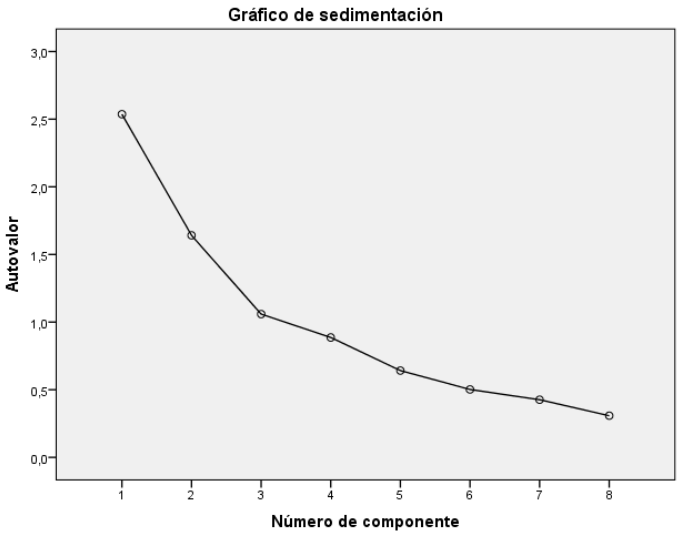
Component score coefficient matrix

	Component	
	1	2
IN_U4_REV	-,105	,278
IN_U5_REV	-,134	-,120
IN_T1_REV	,253	,005
IN_IT2_REV	-,198	-,064
IN_IT6_REV	-,086	-,211
IN_IN2_REV	-,305	,160
IN_IN4_REV	,257	-,322
IN_IN5_REV	,267	-,011
IN_IN6_REV	,031	,352
IN_IN8_REV	,146	,239

Variables IT2 and IN2 show negative weights; therefore they are excluded from the analysis.

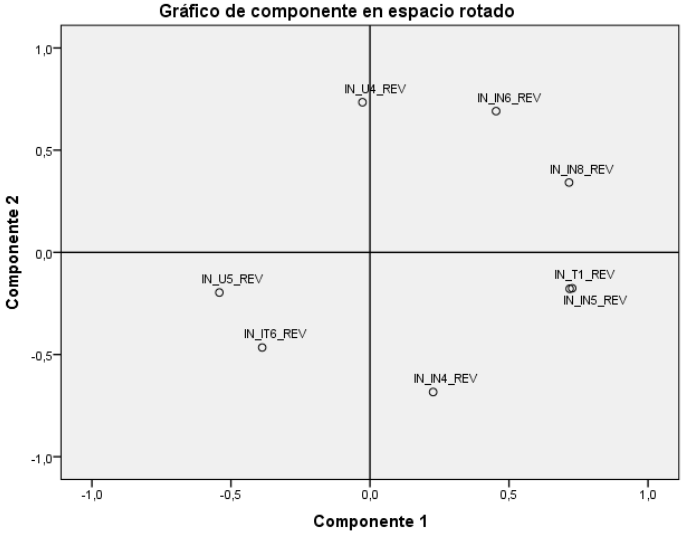
Total variance explained

	Initial eigenvalues			Extraction sums of squared loadings		
Component	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %
1	2,537	31,708	31,708	2,259	28,236	28,236
2	1,641	20,513	52,221	1,919	23,985	52,221
3	1,059	13,237	65,459			
4	,886	11,076	76,534			
5	,642	8,019	84,554			
6	,502	6,272	90,826			
7	,426	5,326	96,151			
8	,308	3,849	100,000			



Component matrix

	Component	
	1	2
IN_U4_REV		,734
IN_U5_REV	-,542	
IN_T1_REV	,727	
IN_IT6_REV		
IN_IN4_REV		-,684
IN_IN5_REV	,718	
IN_IN6_REV		,691
IN_IN8_REV	,716	



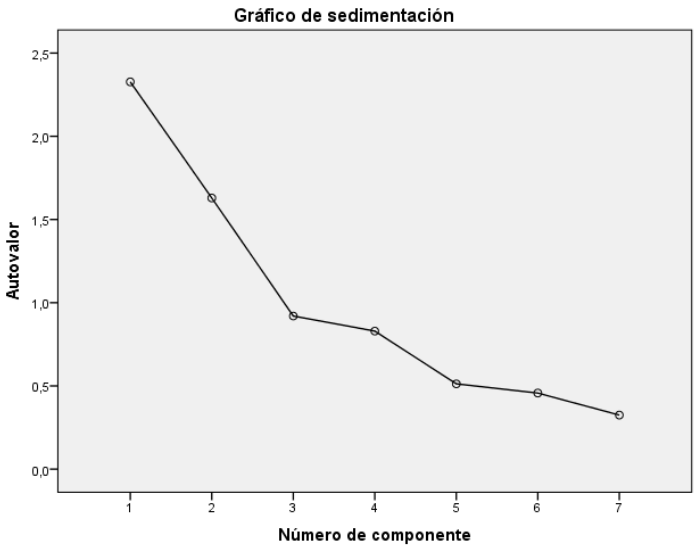
Component score coefficient matrix

	Component	
	1	2
IN_U4_REV	-,085	,401
IN_U5_REV	-,230	-,053
IN_T1_REV	,353	-,168
IN_IT6_REV	-,132	-,214
IN_IN4_REV	,173	-,393
IN_IN5_REV	,349	-,168
IN_IN6_REV	,140	,330
IN_IN8_REV	,296	,114

Variables U5 shows negative weights therefore it is excluded from the analysis.

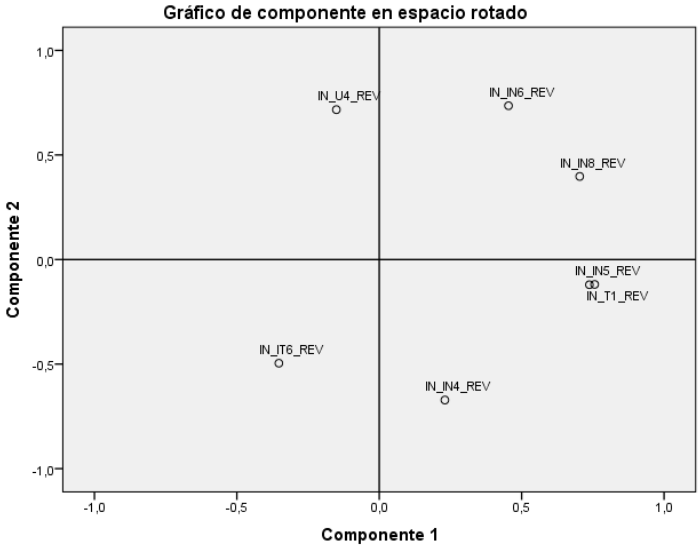
Total variance explained

	Initial eigenvalues			Extraction sums of squared loadings		
Component	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %
1	2,327	33,243	33,243	2,018	28,822	28,822
2	1,629	23,273	56,516	1,939	27,694	56,516
3	,920	13,140	69,657			
4	,830	11,851	81,507			
5	,512	7,321	88,828			
6	,457	6,531	95,359			
7	,325	4,641	100,000			



Component matrix

	Component	
	1	2
IN_U4_REV		,717
IN_T1_REV	,738	
IN_IT6_REV		
IN_IN4_REV		-,672
IN_IN5_REV	,756	
IN_IN6_REV		,736
IN_IN8_REV	,704	



Component score coefficient matrix

	Component	
	1	2
IN_U4_REV	-,143	,395
IN_T1_REV	,388	-,132
IN_IT6_REV	-,135	-,232
IN_IN4_REV	,179	-,379
IN_IN5_REV	,398	-,132
IN_IN6_REV	,165	,350
IN_IN8_REV	,324	,147

Before moving on with the index's computation, missing values have to be imputed; this is done by assigning to the missing value the average value from the geographic group to which the country belongs. The following exceptions are applied:

- For variable IN5, to Canada is imputed the value of the USA.
- For variable B2, to Cyprus is imputed the value of Greece.