

Social Progress Index for Urban and Rural Areas of a Region: Evidence from Peru

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Abstract

The present study describes the methodological process proposed by the Social Progress Imperative Global Organization to calculate the Social Progress Index in urban and rural areas of the province of Huancayo, Peru, in 2020. The survey was based on 229 observations regarding basic human needs, foundations of well-being and opportunities. The result produced an index of 56.04 for urban areas and 53.98 for rural areas; results that are in the low and low middle range respectively, identifying deficiencies in the quality of economic policies, with respect to the sanitation service, where more than 30% do not have access to drinking water, and others. It was concluded that the index showed no improvement with respect to 2019, likewise the social gaps still persist and the well-being of the aforementioned population was not increased.

Keywords

Social progress, social gaps, basic human needs, foundations of well-being, opportunities

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INTRODUCTION

The social progress of a nation leads to economic development and this favors economic growth, however, the opposite does not always happen. For this reason, some people consider "happiness" as a very relevant term when talking about social well-being, which in turn means not only satisfying the Basic Human

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Needs (BHN) of the population of a certain territory. A few years ago it was believed that the Gross Domestic Product (GDP) was an indicator that could measure the well-being of individuals, as the years went by they realized that when they talked about GDP, they only talked in monetary terms and I do not know how to evaluate other aspects that generate well-being for people. According to Greve (2016), the use of indices related to well-being and happiness could improve decision-making by including elements having also another type of value besides monetary measures.

Likewise, it should be considered that within a territory there are two important areas for the development of an individual, that is, in almost all the countries of the world there are rural and urban areas, of which several studies show that there exist significant differences to develop and achieve social well-being within the group designated at birth. The United Nations (2010) report states that the differences between these areas may vary according to the characteristics and needs that each country has, therefore, it would be a mistake to generalize the differences between the two. However, there are similarities: the standard of living and population density is higher in urban areas, but the most significant criteria to determine the difference between the two is the percentage of the economically active population in the agricultural sector, for a lifetime dignified with access to water and sewage, electricity, access to health and education. In Malaysia, Mansor et al. (2013) find that people born in urban areas have a better quality of life compared to people born in rural areas, in aspects such as education, health, communication, security and transportation. In the report developed by Arroyo et al (2018), it is mentioned that territorial inequality still persists in rural and urban areas in Latin America, where they reaffirm that the rural poor are in a worse situation than those in urban areas.

In Peru, there is sufficient information related to economic and social issues; both at the country level and at the regional level, but not at the provincial level given that within the Peruvian territory there is a diversity of territories and also a sociocultural diversity, this information that is available is not enough to be able to understand the growth or the development of the economic that exists.

Several provinces explain much of the departmental economic and social development results; it can be said that there is a bias between the areas within a department which may lead to overestimating or underestimating the results obtained, which are explained by the fact that cities show an accelerated population growth, but not an integration of the population at the same rate and that is why the level of poverty increases within the urban area, the number of informal settlements increases and informal employment also grows consequently it has a higher level of pollution, citizen security is reduced and there is a lower tax collection. Therefore, measuring the Social Progress Index at the provincial level and taking into account the differences that exist between urban and rural areas can reveal truly accurate information.

As Estes (2019) pointed out, in a review of the social progress of the continents of the world, where the continents with improvements in social development are Europe and North America, where there is a high commitment to the environment; the least developed regions were Africa and Asia, but now we see improvements in financial investments, where high advances in technology, development and innovation were visualized; in Latin America development is being seen with constant growth, however, there are weak points that remain to be improved, such as problems in the health system, high rates of population growth, government instability, civil conflict, among others; then it was determined that most countries can satisfy the BHN, however there are still great challenges to optimal well-being.

Several countries in the world develop and measure their social progress through various methods and indices, so that they can obtain a significant result enabling to apply better policies focused on these results. A study conducted by Bilan et al. (2019), in Ukraine showed that one of the main factors for having macro-economic stability was to have a good Social Progress Index (SPI). Clark et al. (2020), made a purchase of Ireland with the most countries of the European Union, and they considered that social statistics are important for a better approach to public policies. Another study conducted by Cárcaba

et al. (2017), of social progress in Spain, where it was observed that the municipalities of the south have a positive social trend, but in Mediterranean areas a social regression is shown.

In Peru, SPI measurements were made at the level of its main regions, according to Collazos et al. (2018), obtained a SPI of 71.23 on a scale from 0 to 100, a result that means that they have a medium-high level of social progress in the district of San Miguel, department of Lima, Peru. It should be shown that the most developed dimension has been that of BHN (85.70). Arias et al. (2020), conducted a study in the city of Puno, Puno department, Peru; which has characteristics similar to Huancayo province, obtaining an SPI of 57.95 which means that it has a low average level. Given the academic and economic progress that has brought with it the passage of time in Peru, in the case of Huancayo Province there is still no detailed information on the standard of living of the population.

Therefore, this research took Huancayo into account because it is a participant in the Emerging and Sustainable Cities Program (ESC) according to the Inter-American Development Bank (2017); that is, Huancayo, like 50 other cities in Latin America and the Caribbean, has some important characteristics, which make it eligible for the ESC; these are: Intermediate city according to the total population of the country, has an accelerated growth both demographically and economically, shows a good environment of governance and social stability, is a reference at the regional level of quality of life and has a high potential to integrate with the world.

For all the aforementioned, the purpose of this study was to calculate, analyze and compare each dimension that makes up the SPI in urban and rural areas of the Huancayo province, for the period 2020, using the methodology of the Global Organization of Social Progress Imperative, and thus identify the most dimension, to be able to improve it through policy recommendations.

1 LITERATURE REVIEW

1.1 Social progress

The concept of social progress has emerged a few years ago, with the initiative of looking for an indicator that better describes economic development, according to Montuschi (2013), this term is related to economic growth, well-being and happiness, that is to say, it is the process that a society undergoes so that it can improve the quality of life of its inhabitants. In addition, it consists of an idea that society has to improve in many aspects, for example, social, environmental, political, and beyond the economic point of view. Many countries also regard prosperity as part of social progress, so they seek better social development for people living within a territory, so this concept optimally encompasses development in societies. In fact, Stern et al. (2020), define Social Progress as the ability of a society to meet the basic human needs of citizens, so that in this way they establish the basic components that allow citizens and communities to improve and sustain the quality of their lives and create the conditions for all people to reach their full potential. In the same way, Stiglitz et al. (2008), determine that it is important to improve the indicators that adequately reflect the structural changes of modern societies, which is why they propose that they should focus on measuring and analyzing the well-being of the population and not economic production.

1.2 Social Progress Index

The SPI is an indicator that helps countries to evaluate the level of social progress that they have according to their components, in this way it is possible to know what size of a country is in a deficient state and thus apply policies that can improve these aspects. A very important concept is offered by Porter et al. (2014), where they define the SPI as a tool that allows to capture a comprehensive set of social outcome measures in a transparent way, also allows countries to identify specific areas of strength or weakness in terms of social progress, as well as to compare with peer countries at both the level of individual and global indicators. After many years Stern et al. (2020), updated their research work on the SPI and describe it as the tool to be able to identify social aspects but not economic, that is to say, collect information

so that based on the results policy decisions can be made, that is to say to be able to evaluate the input results, which allow there to be an improvement in the final results, this in turn makes it possible to make a comparison of different places with reference to their level of progress. In this way this index is essential to see the contrast of public policies through basic social indicators such as; access to electricity, clean water, education, and others. However, Montuschi (2017), refers that SPI is related to the happiness of individuals, that is, if a person lives in a place with greater social progress, this will be much happier because these people will be living in a better society, their quality of life will be more optimal. In the case of Desai (1998), he criticizes GDP as an indicator of human development, since it does not take into account what, how and for whom it is produced, so he recommends the SPI as an indicator that complements GDP and thus evaluate well-being optimally.

The Social Progress Index is directly related to general social welfare, thus evaluating an approximation of the optimal conditions of an individual in a given territory. According to Collazos et al. (2018), these indicators have elements of different natures, in turn with different approaches such as the degree of happiness, social health, ecology, human development or social well-being in general. So, this indicator is optimal to see the results of the policies already implemented, and see what progress has been in society. The structure of SPI consists of 12 components of which are grouped into three dimensions according to the information they collect, the ones are; Basic Human Needs, Fundamentals of Well-being and Opportunities.

1.3 Social Progress Index dimensions

According to Porter et al. (2017) to evaluate the SPI 4 essential principles are used for the design, which are the following: social and environmental indicators, performances, non-efforts, comprehensive and outstanding for all countries and applicable. They were divided into three dimensions for a better assessment of social progress. The SPI considers three fundamental dimensions that are: Basic Human Needs (BHN), Fundamentals of well-being (FW) and Opportunities (OP) that allow to understand the level of real well-being of the population (Marquina and Del Carpio, 2017).

- a) *Basic Human Needs*. This dimension includes the fundamental needs that individuals require to develop effectively at physiological levels, that is, goods and services that can cover the existence of the subjects within a delimited territory. Likewise, according to Porter et al. (2014), the first dimension captures the degree to which the most essential conditions for survival are met. These essential needs must be met to create the minimum standards for further progress. In turn they have 4 very important components that help evaluate this dimension, Nutrition and basic medical care, Water and Sanitation, Housing and Personal Security.
- b) *Fundamentals of Well-being*. This dimension according to Stern et al. (2020), selected items such as the benefit of a modern health system, available information, receiving basic education and communicating freely, allows the citizen to have an environment conducive to a better life. So, this dimension has 4 components that are relevant when estimating the SPI, then it is detailed what they are: Access to Basic Knowledge, Access to Information and Communications, Health and Well-being, Environmental Quality.
- c) *Opportunities*. This dimension is understood by the freedom of expression on the part of individuals, that is to say the level that they can develop freely through their ideas and expressions. In addition, these apply to all those infrastructures that allow individuals to develop fully. This dimension according to Stern et al. (2020), is perhaps the most controversial and the most difficult to measure.

2 MOTIVATION AND HYPOTHESES

The report of the SPI of the regions of Peru carried out by The Business School of Centrum Pontificia Universidad Catolica del Peru (Centrum PUCP) in 2019 was used like a reference to realize this study.

Consequently, this study made a report with a different approach, studying the rural and urban areas to show the gaps that exist between them within Huancayo province that itself explains much of the regional economy of Junín. A provincial and differentiated analysis between urban and rural areas will capture results according to the reality Huancayo province, otherwise (regional analysis) could overestimate or underestimate the social welfare of the same. This application will serve for further analysis of the index with the approach given in this study, that is to say, for those cities that show an accelerated demographic growth, but not an integration of the population at the same pace and that as a consequence increases the poverty rate, increases the number of informal settlements and informal employment, high level of pollution, citizen insecurity and low tax collection.

2.1 General hypothesis

Taking into account the objectives already set for the present study, the general hypothesis was taken; the SPI of the urban area is greater than the SPI of the rural area of the Huancayo Province for the year 2020.

2.2 Specific assumptions

The specific hypotheses that will provide the necessary support for the general hypothesis described above are as follows:

- H1: The basic human needs index (INHB) in the urban area is higher than the index of basic human needs in the rural area in the Huancayo Province for the year 2020.
- H2: The index of fundamentals of well-being (IFB) in the urban area is higher than the index of fundamentals of well-being in the rural area in the Huancayo Province for the year 2020.
- H3: The index of opportunities (IO) in the urban area is higher than the index of opportunities in the rural area in the Huancayo Province for the year 2020.

3 METHODOLOGY

3.1 Data

The SPI report of the regions of our country made in 2019 by the Centrum of the Catholic University of Peru was taken as a reference. For the SPI 2020 calculation, it's considered a descriptive study, with quantitative, non-experimental and cross-sectional approach. The segment of the population was made up of inhabitants aged 14 to 64 years of the Huancayo population. The urban population within the selected age range was 343 022 and the rural area was 25 823 (INEI, 2018). The sample was determined taking into account the formula of a finite population, where a margin of error equal to 10% and a confidence level of 90% are taken, as a result a sample of 115 and 114 was obtained, for the urban and rural areas, respectively.

3.2 Missing values

It identifies relevant data on the variables, if it does not exist a data instrument is built, such is the case of the present research. Table A1 in the Appendix shows 56 questions, organized into 12 components and 3 dimensions based on the data collection instrument standardized by Centrum Católica.

3.3 Standardization

It converts the indicators to the same scale in three steps:

1. First, it establishes scenarios as favorable and non-favorable to determine the concrete limits of the scale that are based on theoretical or historical values.
2. Second, the indicators will be reversed when the increasing values show the lowest SPI values
3. Finally, the indicators are standardized into scores before the calculation of the principal component analysis (PCA).

3.4 Development of the PCA

One of the important points that you should consider before continuing the third step of the standardization, is to perform a factor analysis. De la Fuente (2011) argues that this analysis is mainly based on reducing the set of variables, and, therefore, it is grouped according to its variances and the information provided by each indicator. To perform this analysis, it is necessary to calculate Kaiser, Meyer and Olkin (KMO) statistics, that allows to analyze that this score obtained which is above 0.5, similar studies conducted by Stern et al. (2020), and Garcia and Jimenez (2015) consider that the scores obtained should be close to the unit or be greater than 0.5, so this result allows you to correctly calculate the principal components.

Therefore, once the KMO test has been performed, we proceed to continue with the calculation of the Principal Component Analysis. It could be calculated by Stata, specifically with the *predict factor* command to find significant indicators. To continue, the sequence of steps for the SPI calculation, is described.

3.5 Component scores

It is necessary to consider the formula that reflects the sum of indicators in a main component, where c = Social Component of the progress index and i = respondent.

$$\text{Component Value}_c = \sum_i (w_i * \text{indicator}_i).$$

To convert each major component into a component score on a scale from 0 to 100, we use a simple minimum-maximum formula, where X = component value and i = respondent.

$$\text{Component Score}_c = \frac{(X_j - \text{Worst cases})}{(\text{Best cases} - \text{Worst cases})} * 100.$$

3.6 Dimension scores

For each dimension, the arithmetic average of each of its components that form the dimension will be taken. Be the case that the province under study does not have a score on the components of a dimension, therefore, an SPI score, the following formula is used to calculate a dimension score, where d = dimension and c = component.

$$\text{Dimension}_d = \frac{1}{4} \sum_d \text{Component Score}_d.$$

3.7 Index scores

For the overall SPI score, the arithmetic mean of the 3 dimensions is calculated and the following formula is used, where d = dimension.

$$\text{SPI score} = \frac{1}{3} \sum_d \text{Dimensions}_d.$$

For a proper comparison of the data obtained, Table 2 is used as a reference of the report, which shows that the score of 100 is the highest value that can be obtained and the score with value 0 is the minimum value (Marquina and Del Carpio, 2017).

Table 1 Division of the level of social progress according to the score obtained

SPI score	Level of social progress
Of [85, 100]	Very high
Of [75, 85]	High
Of [65, 75]	Medium high
Of [55, 65]	Medium low
Of [45, 55]	Low
Of [35, 45]	Very low
From [0, 35]	Low end

Source: Retrieved from Regional Social Progress Index (Marquina and Del Carpio, 2017)

4 RESULTS

In the present research, the KMO statistical I score for the urban and rural areas shown in Table 3 has a result greater than 0.5.

Table 2 Keyser-Meyer-Olkin urban and rural

Dimension	Component	KMO urban	KMO rural
Basic human needs	Nutrition and basic medical care	0.615	0.500
	Water and sanitation	0.452	0.506
	Housing	0.564	0.579
	Personal safety	0.564	0.504
Fundamentals of well-being	Access to basic knowledge	0.556	0.500
	Access to information and communications	0.578	0.490
	Health and well-being	0.553	0.544
	Ecosystem sustainability	0.554	0.495
Opportunities	Personal rights	0.568	0.409
	Personal freedom and freedom of choice	0.663	0.470
	Tolerance and inclusion	0.670	0.462
	Access to higher education	0.551	0.517

Source: Stern, Krylova and Harmacek (2020)

In the absence of information at the provincial level, a virtual questionnaire was conducted for a sample of the total population of the Huancayo Province in urban and rural areas, taking into account the three indicators that make up the Social Progress Index. When the main components analysis was carried out, 21 main components were obtained in the urban area and 19 main components in the rural area. These results allowed us to identify which indicators within the dimension components turned out to have more information of the total of the 56 questions asked.

In addition, both in urban and rural areas the standardization was carried out where we had some indicators that by its very nature allowed us to give it a score scale according to well-being, such as the indicator that measures the security that people feel had a criterion from 1 to 5, where 1 is not at all safe and 5 very safe. In the score of the components in both urban and rural areas, the maximum amount

of variations in the data was obtained and, therefore, only groups the indicators that are really significant to be able to describe the SPI in the Huancayo Province corresponding to each zone. Finally, the result of the SPI of Huancayo in urban area, can be reviewed in Table 3. Likewise, the SPI of Huancayo in rural area in Table 4.

The SPI in urban areas is divided according to the 3 dimensions, BHN dimension had a score of 62.20. This dimension is the one that scored the best. This can be explained because 78% of persons surveyed have the façade of their home brick, the floors of their homes in 35% are made of tiles and 33% are cement, on the other hand, there is a low percentage of overcrowding, only 21% of people share a room with some other family member. A very important and very relevant fact is that 98% of the respondents have electricity through the public network, in turn 61% of these people have a kitchen, refrigerator and washing machine, this means that the people surveyed do not yet have essential devices in the housing indicator.

On the other hand, the percentage that is worrisome is that there is still a gap of 17% of persons without health insurance. However, it is still close to average. The dimension of FW has a score of 52.49, which is explained by some more representative indicators for example 47% of people having internet, but only 25% of these have a good connection, so there is a gap in quality of technological services.

Table 3 Sequence of steps for the urban SPI Huancayo

Dimension	Main factors by dimension	Component score	Dimension scores	SPI (by dimension)	TOTAL SPI
Basic human needs	Factor 3	Normalized factor 3 = $\frac{(\text{factor 3} - \text{mini 3})}{(\text{max 3} - \text{mini 3})}$ (for each corresponding factor)	$D1 = (\text{nfactor3} + \text{nfactor9} + \text{nfactor10} + \text{nfactor18} + \text{nfactor13} + \text{factor 19})/6$	D1 = 62.20	
	Factor 9				
	Factor 10				
	Factor 18				
	Factor 13				
	Factor 19				
Fundamentals of well-being	Factor 5	Normalized factor 5 = $\frac{(\text{factor 5} - \text{mini 5})}{(\text{max 5} - \text{mini 5})}$ (for each corresponding factor)	$D2 = (\text{nfactor5} + \text{nfactor7} + \text{nfactor12} + \text{nfactor16} + \text{nfactor1} + \text{factor 11} + \text{factor 21} + \text{factor 15})/8$	D2 = 52.49	56.04
	Factor 7				
	Factor 12				
	Factor 16				
	Factor 1				
	Factor11				
	Factor 21				
Factor 15					
Opportunities	Factor 2	Normalized factor 2 = $\frac{(\text{factor 2} - \text{mini 2})}{(\text{max 2} - \text{mini 2})}$ (for each corresponding factor)	$D3 = \text{nfactor2} + \text{nfactor4} + \text{nfactor8} + \text{nfactor17} + \text{nfactor6} + \text{nfactor 14} + \text{nfactor20})/7$	D3 = 53.43	
	Factor 4				
	Factor 8				
	Factor 17				
	Factor 6				
	Factor 14				
Factor 20					

Source: Own construction

The dimension of OP has a score in the urban area 53.43, this index is reflected by some indicators; for example, 89% of the people surveyed do not agree at all with corruption, 4% tolerate it. 31% of people at some point in their lives have felt discriminated. They are considered within the low mid-range being not favorable when it comes to measuring the social progress of the urban area of the province of Huancayo. The SPI evaluated in the Huancayo Province presented a score of 56.04 points for the urban area, which is located at a medium low level of progress.

The results of the SPI of the Rural Zone in the Huancayo Province for the size of BHN obtained as a score 51.80, it should be considered that the predominant material in the rural area is brick or cement block that represents 49% of the sample, while 38% of the houses are built of adobe or wall, on the other hand 64% of the rural sample has access to drinking water service while 36% do not have a drinking water connection in their homes, which is a major problem for the essential needs to be met, in the personal security component it means that 54% of the sample under study was a victim of theft while 21% have not been victims of any crime, the percentage of theft presents to be more than 50%.

On the side of the dimension of FW the score was 45.55 which is below average, in the component of health care, 72% attend 1 to 3 times a year a health center, 17% do not attend and 3% of respondents attend more than 6 times a year, with regard to access to information and telecommunications internet service in rural areas, 75% of respondents consider that the coverage is regular, 28% that it is bad and only 3% indicate that it is good for the dimension of FW 45.55 being the lowest score because it is below 0.5.

Table 4 Sequence of steps for the rural SPI Huancayo

Dimension	Main factors by dimension	Component score	Dimension scores	SPI (by dimension)	TOTAL SPI
Basic human needs	Factor 1	$\text{Normalized factor 1} = \frac{(\text{factor 1} - \text{mini 1})}{(\text{max 1} - \text{mini 1})}$ (for each corresponding factor)	$D1 = (\text{nfactor1} + \text{nfactor2} + \text{nfactor6} + \text{nfactor9} + \text{nfactor15} + \text{factor 16} + \text{nfactor17})/7$	D1 = 51.80	53.98
	Factor 2				
	Factor 6				
	Factor 9				
	Factor 15				
	Factor 16				
Fundamentals of well-being	Factor 3	$\text{Normalized factor 3} = \frac{(\text{factor 3} - \text{mini 3})}{(\text{max 3} - \text{mini 3})}$ (for each corresponding factor)	$D2 = (\text{nfactor3} + \text{nfactor5} + \text{nfactor8} + \text{nfactor11} + \text{nfactor13} + \text{factor 19})/6$	D2 = 45.55	53.98
	Factor 5				
	Factor 8				
	Factor 11				
	Factor 13				
	Factor 19				
Opportunities	Factor 4	$\text{Normalized factor 4} = \frac{(\text{factor 4} - \text{mini 4})}{(\text{max 4} - \text{mini 4})}$ (for each corresponding factor)	$D3 = (\text{nfactor4} + \text{nfactor7} + \text{nfactor10} + \text{nfactor12} + \text{nfactor14} + \text{nfactor 18})/6$	D3 = 64.57	53.98
	Factor 7				
	Factor 10				
	Factor 12				
	Factor 14				
	Factor 18				

Source: Own construction

Finally, in the third dimension of OP has the highest score of 64.57%, in the component of freedom of expression that 81% of the rural population does not agree in relation to corruption and a reduced percentage of 5% accepts it, then in the component of tolerance and inclusion 31% of the population has been discriminated against at some point either for reasons of place of birth, for some disability, socioeconomic level, among others. It also shows that 24% of the population has suffered some form of psychological, physical or sexual violence during the last 12 months. Therefore, it was concluded that in rural areas it presented a score of 53.98, placing it at a low level of medium social progress.

DISCUSSION AND CONCLUSION

The SPI allows a comparison in relation to other realities, so it allows us to know the situation in which a certain territory is located through the score obtained and identified in the division table of social progress, but even more importantly, it allows us to know and obtain information on aspects that are relevant within the three dimensions such as the BHN, FW and OP, which are being set aside, nor are the relevant measures being taken to solve the problem that raises a reality within a territory, limiting sustainable social development.

If you compare the SPI of the province of Huancayo, both rural and urban areas, both are in the lower middle level, however, according to the organization Social Progress Imperative, the SPI of Peru is 74.22 placing in this way in the 59th place of 163 countries. Now, this first look and comparison gives us to understand that the Huancayo Province still has many dimensions to improve, not to mention that there are deficiencies in each of them.

Noting that Huancayo is below Peru's score; we can compare ourselves with the rest of the economies. According to the World Bank, Peru is classified as a low- and middle-income country; within this classification of the World Bank is Argentina, a country that is in economic crisis and that is still similar to Peru within this classification. The SPI for Argentina is 80.66, placing it on 41st place out of 163 countries; superior to that obtained by Peru and of course to Huancayo. We can also make the comparison with a European economy such as Albania with the population smaller than that of Peru and with a geographical extension also lower than that of Peru; however, the SPI of Albania is 75.41, although it is true that it is not far from the result obtained for Peru according to the organization Social Progress Imperative, the geographical and demographic differences are very significant. Peru being a country with a greater territorial extension and a greater amount of productive force as well as the advantages in terms of natural wealth, it was to be expected that the results will be the opposite. This has only shown that the national shortcoming also affects the departments and especially the provinces of Peru, as is the case of Huancayo.

The social progress index for the urban area of the Huancayo Province had a rating of 56.04 points (low average). While in the rural area a score was obtained not far from that of the urban area, of 53.98, (Low), affirming the general hypothesis raised. As for the Dimension of Basic Human Needs, in the Rural area it was registered at the low level with 51.8 points, and in the Urban area a score of 62.20 considered as a level of social progress Medium Low. In this case, a gap of 10.4 is observed between zones. It is therefore recommended that in areas such as health, an adjustment and budget be made in first-level care establishments, so that it can encourage the reduction of social gaps, as well as promote advertising for access to social insurance, because 24% of the population in rural areas does not have social insurance, and in the case of urban areas the percentage of the population that does not access social security is 17%; that is, this deficiency is found in both the rural and urban areas. To itself, more than 30% in urban area and 18% in rural area do not have the availability of water service within 24 hours, the institution in charge jointly with the corresponding municipality should carry out supervisions and controls for the adequate distribution of water, by which they should be responsible for developing projects to cover this need, it is also known that the amount of investment in water and sanitation is very low, therefore, the increase in budget for water and sanitation is necessary.

In the dimension of FW, the Urban and Rural areas obtained scores of 52.49 (Low) and 45.5 (Low), respectively. Although both qualify as low social progress, there is a gap is the result of a higher percentage of people who have access to higher education in the Urban Zone (78%). In other words, programs aimed at students who are finishing high school must be improved. In addition, awareness about the importance of pursuing higher education (Institutes and Universities) should be raised. Whereas, we have the component of Access to Information and Communication; of the 54% of the rural population and 69% of the Urban population who have access to the Internet, 78% of the sample in the Urban area and 68% of the sample of the Rural Zone, qualify the internet service as regular. Therefore, prioritizing broadband installation projects for comprehensive connectivity will help reduce the gap and increase SPI in both areas. As well, the corresponding municipalities could agree and request support from the regional government for the coordination of recreational activities, that is, to increase citizen participation in sports activities such as athletics, football, volleyball, intern and others, and give incentives, awards, such as educational scholarships for being an outstanding athlete.

This could help to improve the health of citizens and avoid diseases typical of sedentary lifestyle.

Additionally, the Urban area obtained 53.43 points (Low) and the Rural area 64.57 (Medium Low) in the dimension of Opportunities. This is due to the fact that a higher proportion of the population of rural area are beneficiaries of social programs. In addition, 43% and 65% of the urban and rural areas, respectively, live on land by possession, thus increasing informal settlements and overcrowding for housing. For this reason, programs that provide housing benefits and opportunities must facilitate access and reduce the requirements for those who apply to the social program, thus having the formal registration of housing, since in rural areas more than 30% do not have a registered title deed.

The aforementioned recommendations cover the 3 dimensions of the Social Progress Index, as they are important for the population to develop progressively over the years finding its well-being and a sustainable development, so the corresponding institutions should intervene to comply with these.

Finally, it is concluded that, through empirical evidence, there is a gap between both areas, this evidence indicates that the quality of life is higher in the urban area, and it differs in a better quality of education, health, access to entertainment, among others, but they are not as notable as before due to migration between these areas. Since now it is not only the fact of having access to public services that matters, nor the right that exists within a territory, now the level of quality that has been implemented in each of these services prevails.

The information obtained when using the SPI of rural and urban areas is useful to manage the reduction of gaps with specific steps taken by the pertinent authority and around the deficiencies that each area has, in addition to a continuous monitoring of applied policies, carry out an impact evaluation and finally being able to narrow the gap. However, the differences in SPI that exist between rural and urban areas in other countries may differ due to the policies previously implemented in each of them.

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APPENDIX

Table A1 Survey questions for each component

Dimension	Component	Questions (factors)
Basic human needs	Nutrition and basic medical care	1. The bathroom or hygienic service of your home, is connected to 2. On average, how many times a year do you attend a health center? 3. What type of insurance do you have?
	Water and sanitation	4. Do you have the supply of drinking water in your home all day? 5. The water supply in your home comes from: 5.1. Public network outside the home, but inside the building. 5.2. Public network inside the home. 5.3. Tanker truck or other similar. 5.4. Pylon for public use. 5.5. River, acequia, spring or similar. 5.6. Water well.
	Housing	6. The predominant material in the facade of the house is: 6.1. Stone or ashlar with lime or cement. 6.2. Brick or concrete block. 6.3. Quincha (cane with mud). 6.4. Adobe or wall. 6.5. Stone with mud. 6.6. Mat. 6.7. Straw, palm leaves. 7. The predominant material in the floors of the house is: 7.1. Asphalt, vinyl or similar sheets. 7.2. Parquet or polished wood. 7.3. Wood (decking). 7.4. Tiles, terraces or similar. 7.5. Land. 7.6. Cement. 7.7. Dirt floor. 8. The predominant material in the roofs of the house is: 8.1. Wood.

Table A1		(continuation)
Dimension	Component	Questions (factors)
Basic human needs	Housing	8.2. Reinforced. 8.3. concrete. 8.4. Calamine. 8.5. Fiber cement or similar sheets mat. 9. Do you share a room with a member of your family other than your partner? 10. If the above answer is yes How many people do you share the room with? 11. Does the house have electricity through the public grid? 12. What fuel do you use in your home to cook your food? 13. Do you have the following appliances?
	Personal safety	14. Currently, with regard to violence and crime, how safe do you generally feel in the district of Huancayo? 15. Do you consider there is drug sales in your neighborhood or area where you live? 16. Do you consider that prostitution exists in your neighborhood or area? 17. Which of the following crimes have you been the victim of? You can dial more than one.
Fundamentals of well-being	Access to basic knowledge	18. What is your level of education? 19. Do you have other studies?
	Access to information and communications	21. Which of the following services do you have? You can dial more than one. 21.1. Fixed telephony. 21.2. Mobile line post payment. 21.3. Prepaid mobile line. 21.4. Internet. 21.5. Cable. 21.6. None. 22. Is the internet service? 23. What method of communication do you use to inform yourself? You can dial more than one.
	Health and well-being	24. Do you think mental health is important? 25. Have you ever been treated for any mental health issues? 26. Do you have a family member who suffers from any type of mental illness? 27. In the last 12 months, has anyone in your family had any chronic illnesses? 28. In the last 5 years, have any members of your family died of cancer? 29. In the last 5 years, have any members of your family died of cardiovascular disease? 30. Currently, have any members of your family died of covid-19? 31. Do you frequently do any sports? 32. Do you suffer from any addictions?
	Ecosystem sustainability	33. How do you consider the noise level in your area? 33.1. Transport. 33.2. Industry. 33.3. Bars and nightclubs. 34. In your opinion, which of these activities generates the most noise? 35. Do you consider that there is air pollution in your area?
Opportunities	Personal rights	36. Do you believe that there is respect for freedom of expression? 37. Is the house you occupy? 38. Is your home registered in public records? 39. Did you participate in the last district, regional and national elections? 40. Do you benefit from any social programs provided by the state? 41. What programs in your district do you participate in? 41.1. Participatory budgeting. 41.2. Neighborhood councils (vote). 41.3. Neighborhood hearings. 41.4. Neighborhood citizen safety boards. 41.5. I don't participate.
	Personal freedom and freedom of choice	42. In relation to corruption: 42.1. Not at all agree. 42.2. It doesn't matter to me. 42.3. The tolero. 42.4. I accept it.

Table A1		(continuation)
Dimension	Component	Questions (factors)
Opportunities	Personal freedom and freedom of choice	43. Do you have a public service near your home? 44. Do you think that the sidewalks and tracks are in optimal condition and in good condition? 45. What is your rating in satisfaction with the quality and quantity of cultural grade activities in your district? 46. Do you use birth control? 47. What contraceptive methods do you know? You can dial more than one. 48. In the last 3 years, has any member of your household, being a teenage woman been pregnant or was a mother.
	Tolerance and inclusion	49. Have you ever been discriminated against? 50. Do you consider older adults to be respected in your district? 51. What actions do you consider to be linked to physical and psychological family violence? 52. Have you suffered from any kind of psychological, physical, or sexual violence during the past twelve months? 53. Did any members of your household suffer family violence?
	Access to higher education	54. Where did you become professional? 55. Have you ever been a recipient of a State Scholarship? 56. The professional program where you studied is located.

Source: Collazos, Julcamoro, Ramirez and Sakihama (2018)