

## **Quasi-experimental Impact Assessment: Evaluating Urban Centers of Culture, Art, Science and Sports in Brazil.**

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Author: Marques, Fernando Gonçalves  
Plan-eval.com, Brazil

### **Abstract**

In this article we examine the effects that attending the CUCA network has had on the lives of young people living in Fortaleza (Brazil). Through a quasi-experiment we carried out an impact assessment to verify the hypothesis that attending CUCA units positively affects young people's lives in the following aspects: family life; social-emotional skills; performance in studies; awareness of citizenship rights; preparation for the labor market; mitigation of illicit drug use; and awareness about how to avoid unwanted pregnancies and / or STDs. In addition, we examine the possibility that the presence of the CUCA provokes an increase in the sense of security in the neighborhood where it is situated. To measure the above mentioned impacts, we use difference-in-difference regression models, in addition to Logit and Probit models. This paper is part of an evaluation work carried out at the request of the Inter-American Development Bank.

### **Introduction - the CUCA network and public policies for youth in Fortaleza**

In the last decades, a significant number of young people from the city of Fortaleza have faced a precarious, violent reality with limited prospects for progress. In a study conducted in 2007 by the Municipality of Fortaleza in partnership with the Institute of Contemporary Youth, the 1,734 respondents, all aged between 15 and 29 years, identified safety / violence, employment, health and education among their most worrisome social problems.

Besides that, this research pointed out the weak local relevance of schools, with 44% of respondents saying that their school is not interested in the problems of their neighborhood. Within this context, more young people associated "working" with "Necessity " and " Independence" more often than "Self-realization" or "Exploration".

Given this situation, in May 2007, the Municipality of Fortaleza prepared an Integrated Program for Public Policies for Youth (PIPPJ), a long-term plan that included, among other goals, a strategy for establishing partnerships with international development banks in order to diversify the sources of funding for the Program's activities. In 2009 this Program was approved by the Inter-American Development Bank (IDB). The Loan Agreement signed by the City of Fortaleza and

the IDB in 2010 stipulated a period of five years for the implementation of the PIPPI and covered half of its total budget (US\$ 66,132,000.00).

The purpose of the PIPPI was to differentiate itself from the youth policies of past administrations. These were characterized by poor clarity about the profiles and needs of this age group, low efficiency in carrying out actions through public agencies due to, among other things, a lack of dialogue and coordination, and finally, by insufficient financial resources to carry out actions with a long-term impact.

To rectify this situation, the PIPPI aimed to recognize the complexity of the transition to adulthood and the diverse trajectories and potentialities possible for young people (15-29 years of age) today. Among the main objectives of the Program are: the implementation of an integrated system of public youth policies that allows the direct participation of young people; promoting the development of young people through activities involving culture, art, sport, science and technology; the construction of public facilities to provide the necessary structure for these activities; the development of a replicable model that can serve as an example for other urban centers in Latin America; and the insertion of young people in the field of rights and in the life of their communities.

The emblematic accomplishment of this multifaceted program is the creation of Urban Centers of Culture, Art, Science and Sports (CUCA), serving as inclusive spaces aiming to overcome, through their program, socially imposed barriers of gender, social class and phenotype. The PIPPI set the goal of building CUCAs in each of the six administrative regions of the city of Fortaleza, specifically in neighborhoods with a high concentration of low-income population. The first unit was completed in 2009, in the neighborhood of Barra do Ceará. Today the city has two more facilities: one in Jangurussu and one in Mondubim. According to the Coordinator of Public Policies and Management of Youth, these three Centers attended 90 thousand young people in 2015.

## **Hypothesis**

The CUCA Network is composed of three Urban Centers of Culture, Art, Science and Sports (CUCAs) located in the city of Fortaleza. They are public facilities with their attention focused on a young public between 15 and 29 years of age. The Urban Centers offer places to practice various sports, participate in courses and attend presentations related to artistic and cultural production, theater, dance and music. In terms of training, the CUCA Network offers courses ranging from information and communication technologies to sports practices. According to the responsible managers, the CUCAs form a broad structure that aims to build a vision for youth based on their potential and inclusive practices, stimulating their full development.

Among the activities implemented in the CUCAs are training programs, workshops and free courses as well as animation programs. This first category seeks to

promote cultural entrepreneurship and facilitate the future insertion of young people into the labor market by developing their skills and abilities in three broad areas: Art and Culture, Digital Media and Sport. The workshops and free courses are then adapted to local preferences to provide an introduction to the above-mentioned areas and democratize access to creative activities such as dance, craft, foreign language, visual arts and literature classes. Finally, the animation programs consist of festivals, forums and seminars on local social issues, as well as playful sports, art, science, environmental and entertainment activities. This programming represents a mechanism to engage the community and promote social coexistence within in the space of the units.

According to Durlak and Weissberg (2007), young people can in many ways benefit from after-school programs.

“Youth who participate in after-school programs improve significantly in three major areas: feelings and attitudes, indicators of behavioral adjustment, and school performance. More specifically, after-school programs succeeded in improving youths’ feelings of self-confidence and self-esteem, school bonding (positive feelings and attitudes toward school), positive social behaviors, school grades and achievement test scores. They also reduced problem behaviors (e.g., aggression, noncompliance and conduct problems) and drug use. In sum, after-school programs produced multiple benefits that pertain to youths’ personal, social and academic life.”  
(DURLAK and WEISSBERG, 2007)

In the present case, previous opinion polls indicate that the work of CUCAs has been well received by Fortaleza's youth. In a study of users of CUCA Barra (the once called CUCA Che Guevara) conducted in 2012, 69% and 73% of the 200 respondents found the physical structure of the unit and the instructor team "excellent" respectively. In addition, sixty-three percent "fully agreed" that the CUCA "aroused their interest in culture, sports and technology" and 56% "fully agreed" that the CUCA "increased the amount of access to cultural activities." In another study conducted with students who had been evaded by CUCA Barra, 61% of the respondents stated that they were "satisfied" with the institution's performance and that a majority of respondents believed in CUCA's positive influence on professional, personal, student, family and community.

Besides that, as pointed by Vandell et al (2004), when examining ethnically diverse youth from three different states in the US, some of whom participated in after-school programs and others who didn't, they found:

“...pervasive differences in the experiences at programs and elsewhere. Youth spent more time in academic and arts enrichment, organized sports and physical activities, community service, and homework at programs versus elsewhere, and they spent less time eating and watching TV at programs. They also reported higher levels of motivation, engagement, and positive affect at programs. At the same time, there were few differences in activities, emotions, effort, or motivation of program participants and

nonparticipants when both groups were elsewhere. The similarities in these experiences while elsewhere suggest that the program context, not differences in youth characteristics or interests, was responsible for the feelings of engagement that were reported at programs.” (VANDELL et al, 2004)

Therefore, considering the results of many studies previously done on this subject (Kremer et al 2015 ) (VANDELL et al, 2004) (DURLAK and WEISSBERG, 2007), the major hypothesis here is that attending Rede CUCA will positively affect young people's lives in the following aspects: family life; social-emotional skills; performance in studies; awareness of citizenship rights; preparation for the labor market; mitigation of illicit drug use; and awareness about how to avoid unwanted pregnancies and / or STDs

### **CUCA Network Impact Assessment**

The CUCA Network Impact Assessment’s main objective is to measure the impacts that the program had on the life of the young people who attended the centers between 2014 and 2016. This evaluation has a quasi-experimental design, which allows to check what would have happened with the young people if the CUCA Network did not exist.

Following this methodological approach, the group of individuals who attend the CUCA Network is referred to as the Treatment Group, while the group of individuals who provided the information for the construction of a counterfactual is called the Control Group.

Considering CUCA Network's objectives, the impact assessment indicators that are considered for the analysis are: teenage pregnancy; prevention of STDs; performance in studies; school dropout / return; violence in CUCA’s neighborhood; preparation for the labor market; awareness of citizenship rights; decreased use of illicit drugs; increased access to cultural activities; intention to access higher level education.

Primary data collection was made by the application of standardized questionnaires in face-to-face interviews, a technique known as "survey". Two similar models of questionnaires for the data collection were elaborated and applied to both Treatment and Control Groups.

### **Data Collection**

For the application of the questionnaires electronic data collectors (tablets) were used. This technology allows the interviewer to be more agile in filling in the data, provides greater security to avoid fraud and, by eliminating the work of typists, streamlines the process of consolidating the collected data for the bank's training that will be used in the impact assessment.

### *Inclusion of issues with voice capture and GPS location*

In order to register the interviewee's assent and verify the authenticity of the questionnaires, two questions were inserted in which the interviewee's voice was recorded. With this technology it is possible to ensure that the interviewee accepted to participate in the interview and also opens the possibility of confirming the contact data of the interviewee that will be used for the purposes of checking the questionnaires. With similar intention it was established that the tablets used in the research would have a GPS location record control at the time of each interview. Thus, at the end of each interview the system recorded the geographical coordinates of the place where the questionnaire was applied.

### **The data collection strategy**

It was decided that the interviews with the Treatment Group would be carried out within the units of the CUCA Network; while the interviews with the Control Group would be performed at other locations in the city of Fortaleza. The criterion for choosing the other locations for the interviews was that the sites should present a high flow of young people with a similar profile to the audience attending the CUCA Network units.

After defining the strategy and the collection tool, a quantitative sample was elaborated and it was decided that 814 interviews would be conducted for the Treatment Group and 814 interviews for the Control Group.

Considering that the Impact Assessment requires the Control Group to be similar to the Treatment Group in order for the assumption of comparison with a counterfactual to be contemplated, a sampling strategy was developed to ensure that the composition of the Control Group was made with individuals who had characteristics similar to those of the individuals in the Treatment Group. Thus, it was established that data collection would start with the application of questionnaires in the Treatment Group and, once the sample was completed, quotas of age, gender and family income for the Control Group sample would be made. In total, 1644 young people were interviewed.

In figures 1 and 2 below it is possible to identify in the Fortaleza map where the data collection for quantitative research was performed.



## **Impact Assessment through experiments or quasi-experiments**

The objectives of randomized experiments and quasi-experiments are similar. Both seek to ascertain if a certain action (treatment) has caused the effect expected by its developers. These researches use control groups to identify what would have happened if the treatment had not been applied and, by comparing the results found in each of these groups, to estimate the actual effect of the treatment. However, although they have the same goal, the two methodologies operate in different ways. As we will see next, the main difference between the two is in the definition of the participants of the treatment and control groups.

According to Shadish et al (2002), randomization experiments are those in which the treatment and control groups are defined at random. That is, in this type of experiment the individual who will receive the treatment is chosen at random, and the same goes for the definition of the individuals that will be part of the control group. The aim of randomization in defining both groups is to use probability rules to ensure that members of both groups (treatment and control) have similar characteristics prior to treatment.

The advantage of the randomization experiment is that, when well done, it is possible to affirm that the differences observed in the comparison of the two groups (treatment and control) are the result of the treatment in question. (SHADISH et al 2002, p 12 and 13)

In the case of the Impact Assessment of the CUCA Network, it was not possible to use the randomized experiment methodology, since there is no probabilistic procedure to define in advance who will attend the CUCAs units. Therefore, the most appropriate option for the design of this research was to use a quasi-experimental method of analysis.

The main difference between the randomization experiments and the quasi-experiments is how to define the composition of the treatment and control groups. Contrary to what is done in the experiments, in this second method of research the individuals are distributed in two groups, without the use of a probabilistic process that can guarantee that the members of the treatment and control groups have identical characteristics. Near-experiments are commonly used in cases where participation to the treatment is decided by the individuals. This leads to the possibility of non-random differences in the characteristics of the individuals that make up the treatment group and the control group, making the comparison of the results obtained from these groups more complex. (SHADISH et al 2002 p 13 and 14)

## **Quasi-experiments without baseline - Recall Questions Methodology (Recall)**

In the case of CUCA, the evaluation research design was made only after the treatment started to be implemented, without a baseline. Thus, we decided to use

a strategy to reconstruct the baseline by means of retrospective questions in the standardized questionnaires that were applied to both the Treatment Group and the Control Group.

#### *Scales used*

In both questionnaires we used two types of scales. The first one is the Likert scale, which is categorical, and we use four stages (Totally Agree, Partially Agree, Partially Disagree, and Totally Disagree) to evaluate the young man's perspective on his own actions. The second scale is continuous, ranging from zero to ten, and aims to capture a self-assessment of young people regarding each of the topics covered in the questionnaires. Each question in the tool is related to a specific indicator, in order to allow the interview results to be transformed into quantifiable data.

Using the answers to the comparative questions about the present and the past, we traced the evolution of the indicators of the Treatment and Control Groups in the analyzed period through the Differences in Differences method.

### **Method of Differences in Differences in CUCA Network Impact Assessment**

The Differences in Differences (or difference of differences) method, D-in-D, is considered one of the most powerful strategies for impact assessment in the absence of conditions for a pure experiment. In D-in-D, the difference between the means of the indicators in question, over time, is calculated first for both the Control Group and the Treatment Group. Then the second difference is measured, the subtraction of the evolution of the Treatment Group indicators by the evolution of the Control Group. (FOGUEL, 2015) (GERTHER et al., 2010)

### **Differences in Differences Regressions**

We have previously seen how to calculate impact in a simple way using the Differences in Differences method. However, you can use linear regressions to do this same calculation. The advantage of using linear regressions is that this technique allows us to have greater accuracy in the measurement of the impact evaluated, ensuring that the measured effect is not affected by the unobserved characteristics of the individuals, and also provides us with the statistical significance of the result. In this way, there is more confidence that the results found represent the observed reality. Therefore, we chose to measure the impact of the CUCA Network on the lives of young people using the Differences in Differences method calculated by means of linear regressions.

### **The impact of the CUCA Network on the lives of young people**

As we saw earlier, two scales were used in the questionnaires, a Likert scale and the scale of grades (from zero to ten). In order to facilitate the interpretation of the measured impact of the identified, we elaborated a formula to report the results in percentage. When the indicator uses the Likert scale, a factor of 0,33 (1/3) is used to multiply the linear regression coefficient and find the impact in percentage. In the case of the indicators using the zero to ten scale, the factor used in the calculation is 0.10 (1/10).

The 0.33 factor was established because on the four-stage Likert scale (Totally Agree, Partially Agree, Partially Disagree, Totally Disagree), the individual's evolution occurs in three stages, going from "Totally Disagree" to "Totally Agree". In order to measure the impact with this scale of responses, values from 1 to 4 were used. The "Totally Disagree" response was given a value of 1, the "Partially Disagree" response was assigned a value of 2; "I Partially Agree" a value of 3; and "Totally Agree" a value of 4. Doing so, when measuring the evolution of the periods before and after treatment, the interviewee could at most have evolved from "Totally Disagree" (value 1) to "Totally Agree" (value 4). Therefore, the evolution on this scale would have to be at most 3 points. Turning this into a factor, we can say that at each point of evolution, the improvement identified would be 33.33%, or 0.3333.

In the case of the scale of zero to ten, the reasoning is the same, so the factor is 0.10 because the evolution can be up to 10 points, from zero to ten.

## **Results of Impact Assessment**

Having made the initial explanations about the methods used to gauge the impact, we now turn to the discussion of the most striking results. Considering the objectives that the CUCA Network intends to achieve, the indicators that were used to observe the impacts refer to the following themes: teenage pregnancy prevention and STDs; school dropout / return and performance in studies; violence around CUCAs; preparation for the labor market; awareness of citizenship rights; mitigation of illicit drug use; intention to attend higher education; and expanding access to cultural activities.

## **Positive Impacts Found**

The statistical tests performed with the Differences in Differences model show positive impacts on the following indicators: young people's self-confidence; punctuality; self-esteem; frequency in cultural activities; access to cultural activities; security in neighborhoods of CUCAs; grade average; valuation of the study; intention to attend higher education; and performance in the studies.

According to the results found on socio-emotional development, it is possible to affirm that attending the CUCA Network increases, on average, by 4.27% the

confidence rating; by 4.27% the punctuality rating; and by 5.04% the self-esteem rating, when comparing with the Control Group.

Regarding the cultural capital of young people, results show that participation in cultural activities is rated on average, 7,93% higher among young people who go to CUCAs than among respondents of the Control Group, while access to cultural activities is rated 10,06% higher.

Specific to the area of education, the results indicate that attending the CUCA Network increases, on average, by 5.63% the rating on having above-average grades in school, when comparing with the Control Group. In addition, CUCA users value studying by 4.77% more than those who do not attend the CUCA Network. Finally, in the evaluation of performance in the studies, on average, the Treatment Group presented a 4.53% higher performance than the Control Group.

The most robust positive impacts of the CUCA Network were found in regarding security. When comparing the groups of participants of the CUCA versus non-participants, the sense of security reported by the former regarding their neighborhoods is, on average, 10.43% higher; and the assessment of the neighborhood's safety is, on average, 12% higher than the one reported by non-participants.

#### Differences in Differences Models

Hypothesis	Scale	Factor	Regression Coefficient	Significance: *p<0.1; **p<0.05; ***p<0.01	Impact measured*
Help parents at home	Likert	0.3333	-0.069	not significant	no impact
Dialogue with parents	Likert	0.3333	-0.037	not significant	no impact
Family life assessment	0 to 10	0.1	0.063	not significant	no impact
Extroversion	Likert	0.3333	0.112	p<0.1	no impact
Self-confidence	Likert	0.3333	0.128	p<0.05	4.27%
Has a good perspective for your own life	Likert	0.3333	0.082	not significant	no impact
Punctuality	Likert	0.3333	0.128	p<0.05	4.27%
Responsibility	Likert	0.3333	0.014	not significant	no impact
Self-esteem assessment	0 to 10	0.1	0.504	p<0.01	5.04%
Attends cultural activities	Likert	0.3333	0.238	p<0.01	7.93%
Cultural activities assessment	0 to 10	0.1	1.006	p<0.01	10.06%
Feels safe in the	Likert	0.3333	0.313	p<0.01	10.43%

### Differences in Differences Models

Hypothesis	Scale	Factor	Regression Coefficient	Significance: *p<0.1; **p<0.05; ***p<0.01	Impact measured*
<b>Neighborhood</b>					
Neighborhood's safety assessment	0 to 10	0.1	1.2	p<0.01	12.00%
Has above average grades in school	Likert	0.3333	0.169	p<0.05	5.63%
Understands the importance of studying	Likert	0.3333	0.143	p<0.01	4.77%
Own performance in school assessment	0 to 10	0.1	0.453	p<0.01	4.53%
Aware of the possible harm of drug use	Likert	0.3333	0.047	not significant	no impact
Intend to stop using drugs	0 to 10	0.1	0.248	not significant	no impact
Is aware of citizen rights	Likert	0.3333	0.06	not significant	no impact
Awareness of citizenship rights assessment	0 to 10	0.1	0.021	not significant	no impact
Conscious about how to avoid early pregnancy and STIs	Likert	0.3333	0.079	p<0.1	no impact
Knows where to find information about early pregnancy and STDs	0 to 10	0.1	-0.084	not significant	no impact
Feels well prepared to work in the regular labor market	0 to 10	0.1	-0.225	p<0.1	no impact

\*Measured impact: Factor x Regression coefficient

In addition to the linear regressions, we opted for doing additional analyses using Logit and Probit models. These measurement tools are used in regressions where the variable to be explained is binary and denotes the occurrence of a "success" or "failure".

In the evaluation performed through these models, the most striking result is that individuals who attend CUCAs have, on average, 17.65% more chances of returning to study than their control group peers. Still on the subject of the CUCA stimulation of studies, people in the Treatment Group are, on average, 3.41% more likely to present an intention to take a higher-level degree than individuals from the Control Group.

### Logit and Probit Models

Hypothesis	Model	Regression Coefficient	Significance: *p<0.1; **p<0.05; ***p<0.01	Impact measured
Got a job	Logit	-0.035	not significant	no impact
Got a job	Probit	-0.021	not significant	no impact
Always use condom	Logit	0.023	not significant	no impact
Always use condom	Probit	0.014	not significant	no impact
Went back to study	Logit	0.952	p<0.1	17.73%
Went back to study	Probit	0.561	p<0.05	17.65%
Did not quit studies	Logit	-0.151	not significant	no impact
Did not quit studies	Probit	-0.077	not significant	no impact
Intention to have a higher-level degree	Logit	0.402	p<0.05	3.41%
Intention to have a higher-level degree	Probit	0.204	p<0.05	3.39%
Stopped using drugs	Logit	-1.221	p<0.01	-25.98%
Stopped using drugs	Probit	-0.746	p<0.01	-26.14%
Stopped or Decreased Drug Use	Logit	-0.975	p<0.01	-20.52%
Stopped or Decreased Drug Use	Probit	-0.592	p<0.01	-20.56%

\* Impact Measured in Logit and Probit is the marginal effect

### Negative Impact Found

In the linear regressions of the Differences in Differences model, no negative impacts of the evaluated program were found. That is, for none of the evaluated indicators did the Control Group have a performance significantly superior to the Treatment Group.

However, in the Logit and Probit models it was possible to identify a negative result regarding the chances of an individual having stopped using drugs after having started attending the CUCA Network units. Young people who used illicit drugs before beginning to attend CUCA Network units are, on average, 26.1% less likely to have stopped using drugs than those who did not attend. That is, the chance of an individual in the Control Group having stopped using illicit drugs is, on average, 26.1% higher than the young of the Treatment Group.

In order to go deeper into this analysis, and considering the CUCAs drugs damage control policy, we made a new calculation considering not only the youngsters'

chances of quitting but also evaluating if there was a decrease in the use of illicit drugs. The result of this test showed that the chances of young people who do not attend CUCAs have stopped or decreased are, on average, 20% higher than those who frequent the CUCA Network.

This is not surprising if we consider that, as seen in the focus groups conducted with the young fellows at the Jangurussu unit, the damage control policy work done at the CUCAs helps to break taboos on the effects of drugs and also helps in the perception that this is a matter that can and should be discussed in society. Thus, it is possible that young people attending CUCAs are less afraid to admit using illicit drugs, while their peers in the Control Group may have directed their responses, not admitting that they use them for fear of being identified as marginalized.

In addition, although the CUCAs have several posters discouraging drug use, in the focus group with the youngsters of CUCA Jangurussu it was also possible to note that these posters are often seen as contradictory, given the harm reduction work done by the CUCAs themselves. Thus, one hypothesis to explain this adverse outcome is that young people attending CUCAs believe that moderate use of illicit drugs should not be seen as negative.

### **Unidentified impacts**

We have mentioned the positive and negative results found in the evaluation of the CUCA Network. However, it is also interesting for this research to take a look at indicators that did not show a statistically significant impact in order to have an idea of what effects were expected by the theory of change and were not observed, thus allowing the adjustment of the program's logical model.

The models used in this evaluation indicate that it is not possible to say that the CUCA Network has had an impact on the lives of young people in the following indicators: help to parents at home; dialogue with parents; evaluation of family life; extroversion; perspective of life; responsibility; awareness of the effects of drugs on the body; awareness of citizenship rights; awareness about how to avoid an unwanted pregnancy and STDs; and preparation for the job market.

The lack of perception of impact in family life is not surprising, since this aspect has been much more commented on in the focus groups with relatives than in the conversations with the young people. An explanatory hypothesis here would be that, although some impact may occur in this area, young people may not have noticed such an evolution.

Observing the results on citizenship rights awareness, even when there was no statistically significant impact, it is worth noting that when asked about where to find help if they were victims of some type of violence, 81% of the Control Group youth cited only the Police, while 43% of young people in the Treatment Group pointed out other places where they could seek support. Ten percent of this group cited the CUCA as a place that could offer assistance in these cases. This

demonstrates that the young people who attend the CUCAs identify a greater diversity of public or private institutions that they turn to when needed.

In terms of prevention of unwanted pregnancy and STD contamination, the questionnaire responses show that almost all the interviewees had already received some guidance on the subject (96% of the Control Group and 94.5% of the Treatment Group). CUCA was cited by 37% of the Treatment Group, while 84% of the Control Group cited only a health clinic. This fact demonstrates that the young people who attend the CUCAs also identify these institutions as a source of access to the prevention of pregnancy and STDs.

With regard to the lack of impact in the area of work, more precisely on the possible effect that the CUCA Network would have on preparing young people for the labor market, analyzing the results of the research, it was possible to identify that 23.1 % of the young people who attend CUCA and are employed said to have taken a course at CUCA helped to obtain employment; while 55% said that there is no relation between the employment obtained and the CUCA courses. That is, 1 in 4 young employees considered that the CUCA contributed directly to their job. This is a high value considering that the jobs offered in the labor market far outnumber the CUCA Network, focusing on the creative economy and the culture market.

## **Conclusions**

Given the benefits that the work of the CUCA Network can bring to the well-being of young people in Fortaleza, the overall objective of this evaluation was to measure the impact made by the program.

To fulfill the above-described goal, the research answered three main questions:

- Can the CUCA Network achieve its objectives?
- What are the effects of the program on the lives of young people who attend CUCAs?

By offering answers to these questions, this work contributed to provide information that allows responsible managers to make decisions to improve the services of the CUCA Network as a whole. Complementarily, by disseminating the results described here and subjecting them to a broader debate with specialists, participants, managers and technicians from other bodies and institutions, the CUCA Network team will benefit strongly from the insights generated in this process to improve its operating model.

The results found in the Impact Assessment indicate that the CUCA Network reaches, in part, the proposed objectives, causing significant impacts on the lives of young people. The results show that the young people who attend the CUCA Network present better performance in their studies, are more likely to enroll in higher education courses, have better social-emotional skills and have more access

to cultural activities. The social-emotional competencies that evolved positively were confidence, punctuality and self-esteem. They all have indirect effects on more tangible positive consequences, such as the ability to keep a job, to do higher-quality jobs, and overall well-being. In addition, it was observed that the CUCA attendees evaluated the safety in the neighborhoods around these facilities as being on average better than in the other districts of the city, where the interviews with the Control Group were made.

The CUCA Network's ability to generate a healthy and sociability stimulating environment, described in a practically unanimous way by young people, serves as evidence of a positive result on the behavior of these young people whose impacts can only be measured on a longer term.

However, alongside the many positive impacts found there is also one impact that could be considered as negative. The hypothesis that attending CUCA helps mitigate the use of illicit drugs by young people cannot be confirmed, given our results showing that those who do not attend CUCAs are, on average, 26% more likely to stop using drugs than those who attend some of the Network's units. When we consider in this analysis not only those who stopped but also those who decreased their use, we can see that the effect continues to be negative, but is smaller, with young people who do not attend CUCAs being 20% more likely to stop or decrease the use of drugs. This point deserves attention because, although it is the only negative effect of the CUCAs, the impact dimension can be considered large, when compared to the size of the positive effects verified in this research.

As pointed out by young people, the harm reduction approach to drugs embodies a tacit acceptance of its use, even though there is no stimulus to use. Quite the contrary in fact, the use of drugs is strictly prohibited in CUCAs. Thus, this lower propensity to abandon the use of illicit drugs by regulars can be explained by an environment less subject to direct repression than conventional public space. It is also worth taking into account the response bias that may have affected the measurement itself. Respondents from the control group were interviewed in a public setting and without a broader context about the purpose of the survey. They may therefore have been more cautious in reporting their behavior toward drugs than those interviewed at the CUCA where retaliation is expected to be minor or non-existent.

Regarding the reduction of sexually transmitted diseases and unwanted pregnancies, the observed impact was indirect, in the difference observed between consumers and non-regulators regarding their habits of obtaining condoms. Since the vast majority of the CUCA youngsters are looking for these facilities when they need condoms, while the others go to the health center.

With regard to the expected impacts of the CUCA's original theory of change on school drop-out, we do note that there is a greater inclination among those who have dropped out of school to return to their studies, as well as among those who study, to remain in the formal educational environment until higher education. In

the quantitative analysis, behavioral results showed a lower propensity to drop out of school, such as respondents reporting an increase in the willingness to study and a better performance in their studies.

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## ANNEX

### Tabelas Resumos dos Modelos de Regressão - Avaliação Impacto CUCA

#### Diferenças em Diferenças

Questão	Escala	Fator	Coefficiente de Regressão	Significância	Impacto Calculado
Ajuda Pais	Likert	0.3333	-0.069	n significante	sem impacto
Diálogo c/ pais	Likert	0.3333	-0.037	n significante	sem impacto
Convívio Familiar	0 a 10	0.1	0.063	n significante	sem impacto
extroversão	Likert	0.3333	0.112	p<0.1	sem impacto
autoconfiança	Likert	0.3333	0.128	p<0.05	4.27%
autoestima	Likert	0.3333	0.082	n significante	sem impacto
pontualidade	Likert	0.3333	0.128	p<0.05	4.27%
responsabilidade	Likert	0.3333	0.014	n significante	sem impacto
Ava .autoestima	0 a 10	0.1	0.504	p<0.01	5.04%
Frequenta Ativ Culturais	Likert	0.3333	0.238	p<0.01	7.93%
Acesso a Ativ. Culturais	0 a 10	0.1	1.006	p<0.01	10.06%
Sente Seguro no Bairro	Likert	0.3333	0.313	p<0.01	10.43%
Ava. Segurança no Bairro	0 a 10	0.1	1.2	p<0.01	12.00%
Notas acima da média	Likert	0.3333	0.169	p<0.05	5.63%
Valoriza Estudo	Likert	0.3333	0.143	p<0.01	4.77%
Ava. Desempenho Estudos	0 a 10	0.1	0.453	p<0.01	4.53%
Consciente Efeitos Drogas	Likert	0.3333	0.047	n significante	sem impacto
Ava. Chance Parar Drogas	0 a 10	0.1	0.248	n significante	sem impacto
Consciente Direitos Cidadão	Likert	0.3333	0.06	n significante	sem impacto
Ava. Consciência sobre direitos	0 a 10	0.1	0.021	n significante	sem impacto
Consciente Evitar Gravidez	Likert	0.3333	0.079	p<0.1	sem impacto
Preparação Evitar Gravidez	0 a 10	0.1	-0.084	n significante	sem impacto
Ava. Preparação Mercado de Trabalho	0 a 10	0.1	-0.225	p<0.1	sem impacto

## Logit e Probit

Hipótese	Modelo	Coefficiente de Regressão	Significância	Impacto Calculado*
Conseguiu Emprego	Logit	-0.035	n significativa	sem impacto
Conseguiu Emprego	Probit	-0.021	n significativa	sem impacto
Sempre usa Preservativo	Logit	0.023	n significativa	sem impacto
Sempre usa Preservativo	Probit	0.014	n significativa	sem impacto
Voltou a Estudar	Logit	0.952	p<0.1	17.73%
Voltou a Estudar	Probit	0.561	p<0.05	17.65%
Não Abandonou os Estudos	Logit	-0.151	n significativa	sem impacto
Não Abandonou os Estudos	Probit	-0.077	n significativa	sem impacto
Pretende Fazer Curso de Nível Superior	Logit	0.402	p<0.05	3.41%
Pretende Fazer Curso de Nível Superior	Probit	0.204	p<0.05	3.39%
Parou de Usar Drogas	Logit	-1.221	p,0.01	-25.98%
Parou de Usar Drogas	Probit	-0.746	p,0.01	-26.14%

\* Impacto Calculado no Logit e Probit é o efeito marginal

## Modelos de Regressão

Outcome – Convívio Familiar - Dif in dif

### Results

Dependent variable:		
Convívio Familiar - 0 a 10	Ajuda Pais -1kt	Diálogo c/ pais - 1kt
tratamento -0.036 (0.092)	0.106*** (0.040)	0.017 (0.043)
tempo 0.741*** (0.092)	0.269*** (0.040)	0.322*** (0.043)
did 0.063 (0.130)	-0.069 (0.057)	-0.037 (0.060)
Constant 7.839*** (0.065)	3.159*** (0.028)	2.963*** (0.030)
Observations 3,288	3,280	3,285
R2 0.041	0.023	0.030
Adjusted R2 0.041	0.022	0.029
Residual Std. Error 1.861 (df = 3284)	0.812 (df = 3276)	0.866 (df = 3281)
F Statistic 47.300*** (df = 3; 3284)	25.377*** (df = 3; 3276)	33.696*** (df = 3; 3281)

Note:  
p<0.1; \*\*p<0.05; \*\*\*p<0.01

\*

Outcome – habilidades socioemocionais - Dif in dif

Results

Dependent variable:		
autoestima - 1kt	extroversão -1kt	autoconfiança -1kt
tratamento -0.024 (0.042)	0.143*** (0.048)	-0.021 (0.037)
tempo 0.310*** (0.042)	0.248*** (0.048)	0.326*** (0.037)
did 0.082 (0.060)	0.112* (0.068)	0.128** (0.052)
Constant 3.124*** (0.030)	2.460*** (0.034)	3.089*** (0.026)
Observations 3,285	3,285	3,287
R2 0.041	0.035	0.066
Adjusted R2 0.040	0.034	0.065
Residual Std. Error 0.854 (df = 3281)	0.970 (df = 3281)	0.752 (df = 3283)
F Statistic 47.011*** (df = 3; 3281)	39.435*** (df = 3; 3281)	76.733*** (df = 3; 3283)

Note:

0.1; \*\*p<0.05; \*\*\*p<0.01

\*p<

Outcome – habilidades socioemocionais - Dif in dif

Results

	Dependent variable:	
	pontualidade -lkt	responsabilidade - lkt
ava .autoestima - 0 a 10		
tratamento	-0.014	0.100**
-0.125	(0.044)	(0.040)
(0.095)		
tempo	0.189***	0.294***
0.995***	(0.044)	(0.040)
(0.095)		
did	0.128**	0.014
0.504***	(0.062)	(0.057)
(0.134)		
Constant	3.028***	2.958***
7.287***	(0.031)	(0.028)
(0.067)		
Observations	3,287	3,286
3,288		
R2	0.022	0.037
0.100		
Adjusted R2	0.021	0.036
0.099		
Residual Std. Error	0.892 (df = 3283)	0.812 (df = 3282)
1.923 (df = 3284)		
F Statistic	24.399*** (df = 3; 3283)	42.334*** (df = 3; 3282)
121.341*** (df = 3; 3284)		

Note: \*p <0.1; \*\*p<0.05; \*\*\*p<0.01

Outcome – Acesso Atividades Culturais - Dif in dif

Results

```

=====
=====
                                     Dependent variable:
-----
raais 0 a 10      Frequenta Ativ Culturais -lkt Acesso a Ativ. Cultu
-----
tratamento          0.402***          0.799***
                    (0.047)          (0.113)

tempo               0.279***          1.053***
                    (0.047)          (0.113)

did                 0.238***          1.006***
                    (0.067)          (0.159)

Constant            2.185***          5.384***
                    (0.033)          (0.080)

-----
Observations        3,282              3,286
R2                  0.109              0.174
Adjusted R2         0.108              0.173
Residual Std. Error 0.955 (df = 3278)  2.284 (df = 3
282)
F Statistic         133.445*** (df = 3; 3278)  229.852*** (df =
3; 3282)
=====

```

Note: \*p<0.1; \*\*p<0.05  
; \*\*\*p<0.01

Outcome – Avaliação Segurança - Dif in dif

Results

```

=====
-----
                                Dependent variable:
-----
ro 0 a 10
-----
-----
tratamento                -0.220***                -0.708***
                           (0.048)                   (0.120)

tempo                      0.182***                0.528***
                           (0.048)                   (0.119)

did                        0.313***                1.200***
                           (0.068)                   (0.168)

Constant                   2.059***                4.926***
                           (0.034)                   (0.085)

-----
-----
Observations                3,232                    3,237
R2                          0.037                    0.068
Adjusted R2                 0.036                    0.067
Residual Std. Error        0.962 (df = 3228)       2.389 (df = 3233)
F Statistic                 41.346*** (df = 3; 3228) 78.162*** (df = 3; 3233)
=====

```

Note:  
\*\*\*p<0.01

\*p<0.1; \*\*p<0.05;

Outcome – Avaliação Educação - Dif in dif

Results

			Dependent variable:
Ava. Desempenho Estudos	Notas acima da média-1kt 0 a 10	Valoriza Estudo-1kt	
tratamento	-0.118**	-0.174***	
-0.129	(0.050)	(0.036)	
(0.103)			
tempo	0.052	0.187***	
0.721***	(0.048)	(0.034)	
(0.098)			
did	0.169**	0.143***	
0.453***	(0.071)	(0.051)	
(0.146)			
Constant	2.831***	3.690***	
7.184***	(0.034)	(0.024)	
(0.069)			
Observations	2,015	2,021	
2,022			
R2	0.010	0.058	
0.079			
Adjusted R2	0.008	0.056	
0.078			
Residual Std. Error	0.795 (df = 2011)	0.568 (df = 2017)	
1.634 (df = 2018)			
F Statistic	6.580*** (df = 3; 2011)	41.052*** (df = 3; 2017)	
57.736*** (df = 3; 2018)			

Note:  
\*p<0.1; \*\*p<0.05; \*\*\*p<0.01

Outcome – Avaliação Mitigar uso Drogas - Dif in dif

Results

```

=====
=====
                                     Dependent variable:
-----
Consciente Efeitos Drogas-1kt Ava. Chance Parar Dr
ogas 0 a 10
-----
-----
tratamento                -0.075***                0.054
                           (0.028)                  (0.456)

tempo                      0.216***                0.800*
                           (0.028)                  (0.467)

did                        0.047                   0.248
                           (0.040)                  (0.645)

Constant                   3.685***                5.537***
                           (0.020)                  (0.330)

-----
-----
Observations                3,286                   400
R2                          0.045                   0.022
Adjusted R2                 0.044                   0.014
Residual Std. Error        0.567 (df = 3282)      3.221 (df = 3
96)
F Statistic                 51.838*** (df = 3; 3282)  2.929** (df = 3
; 396)
=====
=====

```

Note:  
; \*\*\*p<0.01

\*p<0.1; \*\*p<0.05

Outcome – Avaliação Consciência Direitos Cidadania - Dif in dif

Results

Variable	Dependent var
-----	
Consciente Direitos Cidadão-1kt Ava. C	
-----	
Consciência sobre direitos 0 a 10	
-----	
tratamento	0.118***
0.192**	(0.036)
(0.087)	
tempo	0.403***
1.447***	(0.037)
(0.087)	
did	0.060
0.021	(0.052)
(0.123)	
Constant	3.048***
6.666***	(0.026)
(0.061)	
-----	
Observations	3,288
3,288	
R2	0.088
0.149	
Adjusted R2	0.087
0.149	
Residual Std. Error (df = 3284)	0.740
1.758	
F Statistic (df = 3; 3284)	105.677***
192.101***	
-----	
-----	

Note:

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01

Outcome – Avaliação Consciência Evitar Gravidez e DST- Dif in dif

Results

Dependent variable:		
Consciente Evitar Gravidez-1kt Ava. Preparação Evi		
tar Gravidez 0 a 10		
tratamento 5**	-0.052* (0.031)	0.22 (0.1)
tempo 6***	0.313*** (0.031)	1.25 (0.1)
did 084	0.079* (0.044)	-0. (0.1)
Constant 3***	3.543*** (0.022)	7.66 (0.0)
Observations 86	3,287	3,2
R2 80	0.074	0.0
Adjusted R2 80	0.073	0.0
Residual Std. Error = 3282)	0.630 (df = 3283)	2.077 (df
F Statistic f = 3; 3282)	87.007*** (df = 3; 3283)	95.715*** (d

Note:  
\*\*p<0.05; \*\*\*p<0.01

\*p<0.1;



## Modelos Logit e Probit

##Conseguiu Emprego ##

Results

```
=====
                        Dependent variable:
-----
                logistic                probit
                Conseguiu Emprego    Conseguiu Emprego
-----
tratamento                -0.035                -0.021
                            (0.207)                (0.122)

Constant                   -1.099***                -0.674***
                            (0.159)                (0.094)

-----
Observations                520                520
Log Likelihood              -290.182                -290.182
Akaike Inf. Crit.          584.364                584.364
=====
Note:                        *p<0.1; **p<0.05; ***p<0.01
```

Average marginal effects

```
glm(formula = c_emplogo ~ tratamento, family = binomial("logit"),
data = CUCA_Tec)
```

```
tratamento
-0.006493
```

Average marginal effects

```
glm(formula = c_emplogo ~ tratamento, family = binomial("probit"),
data = CUCA_Tec)
```

```
tratamento
-0.006493
```

### Uso de Preservativos ###

Results

```
=====
                        Dependent variable:
-----
                logistic                probit
                Sempre usa Preservativo  Sempre usa Preservativo
-----
tratamento                0.023                0.014
                            (0.132)                (0.077)

Constant                1.166***                0.714***
                            (0.094)                (0.055)

-----
Observations                1,270                1,270
Log Likelihood                -693.098                -693.098
Akaike Inf. Crit.                1,390.195                1,390.195
=====
```

Note: \*p<0.1; \*\*p<0.05; \*\*\*p<0.01

Average marginal effects

```
glm(formula = camisinha ~ tratamento, family = binomial("logit"),
data = CUCA_Tec)
```

```
tratamento
0.004175
```

Average marginal effects

```
glm(formula = camisinha ~ tratamento, family = binomial("probit"),
data = CUCA_Tec)
```

```
tratamento
0.004175
```

### Voltou a Estudar ###

Results

```
=====
                        Dependent variable:
-----
               logistic      probit
               Voltou a Estudar Voltou a Estudar
-----
tratamento           0.952*           0.561**
                   (0.487)           (0.283)

Constant             -1.558***          -0.939***
                   (0.389)           (0.218)

-----
Observations                97                97
Log Likelihood              -54.365            -54.365
Akaike Inf. Crit.          112.731            112.731
=====
Note:                *p<0.1; **p<0.05; ***p<0.01
```

Average marginal effects

```
glm(formula = v_estudar ~ tratamento, family = binomial("logit"),
data = CUCA_Tec)
```

```
tratamento
0.1773
```

Average marginal effects

```
glm(formula = v_estudar ~ tratamento, family = binomial("probit"),
data = CUCA_Tec)
```

```
tratamento
0.1765
```

### Não Abandonou os Estudos ###

Results

```
=====
                        Dependent variable:
-----
                logistic                probit
                Não Abandonou os Estudos Não Abandonou os Estudos
-----
tratamento                -0.151                -0.077
                        (0.212)                (0.108)

Constant                2.350***                1.359***
                        (0.147)                (0.074)

-----
Observations                1,057                1,057
Log Likelihood                -326.124                -326.124
Akaike Inf. Crit.                656.248                656.248
=====
Note:                *p<0.1; **p<0.05; ***p<0.01
```

Average marginal effects

```
glm(formula = n_evasao ~ tratamento, family = binomial("logit"), data = CUCA_Tec)
```

```
tratamento
-0.01277
```

Average marginal effects

```
glm(formula = n_evasao ~ tratamento, family = binomial("probit"), data = CUCA_Tec)
```

```
tratamento
-0.01276
```

### Pretende Fazer Curso de Nível Superior ###

Results

```
=====
=====
                                     Dependent variable:
-----
                                logistic
probit      Pretende Fazer Curso de Nível Superior Pretende Faze
r Curso de Nível Superior
-----
-----
tratamento      0.402**
0.204**         (0.198)
(0.100)

Constant        2.081***
1.222***       (0.133)
(0.069)

-----
-----
Observations    1,226
1,226
Log Likelihood  -377.238
-377.238
Akaike Inf. Crit. 758.476
758.476
=====
=====
```

Note: \*p  
<0.1; \*\*p<0.05; \*\*\*p<0.01

Average marginal effects  
glm(formula = e.superior ~ tratamento, family = binomial("logit"),  
data = CUCA\_Tec)

tratamento  
0.03407

Average marginal effects  
glm(formula = e.superior ~ tratamento, family = binomial("probit"),  
data = CUCA\_Tec)

tratamento  
0.03394

### Parou de Usar Drogas ###

Results

```
=====
                        Dependent variable:
-----
                logistic                probit
                Parou de Usar Drogas  Parou de Usar Drogas
-----
tratamento          -1.221***          -0.746***
                   (0.303)             (0.182)

Constant            -0.000             0.000
                   (0.189)             (0.118)

-----
Observations                213                213
Log Likelihood             -131.820            -131.820
Akaike Inf. Crit.         267.640            267.640
=====
```

Note: \*p<0.1; \*\*p<0.05; \*\*\*p<0.01

Average marginal effects

```
glm(formula = p_drogas ~ tratamento, family = binomial("logit"), data = CUCA_Tec)
```

```
tratamento
-0.2598
```

Average marginal effects

```
glm(formula = p_drogas ~ tratamento, family = binomial("probit"), data = CUCA_Tec)
```

```
tratamento
-0.2614
```