**Reducing marine debris pollution by changing household behavior through children education**

**(Supplement – explanatory note)**

*This version, December 4th, 2019*

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1. *Introduction and context*

On October 18th, 2019, a major social unrest started to take place in Chile. This has affected the normal functioning of the country, in all areas, and in all its regions. As of today, this situation is still ongoing and it does not seem to come to an end in a near future. One of the main affected areas is the Biobio Region, where our intervention takes place.

1. *Implications for implementation*

Following the schedule of the implementation of the experimental design, our intervention was expected to end on December 13th, 2019. Although the intervention did follow the proposed schedule before the unrest, the administration of the intervention has suffered delays as a consequence of the unrest, which affected the management of the schools (e.g., lessons canceled by the educational institutions, teachers’ strikes, absence of students in response to parents’ concerns, etc.). This situation was an unexpected event out of control of the researchers involved. Notwithstanding the difficult situation, the researchers have managed to continue implementing the program keeping the contents and activities exactly as planned, but with some flexibility in terms of the frequency of the lessons. As of today, the program has been finalized in 11 out of 15 treated schools, including the *ex*-*post* survey. Additionally, the lessons contained in the program has been completed in 13 out of 15 schools (in the remaining 2 schools only the final lesson is missing). The research team has re-scheduled the closing activity of the program in the remaining 4 treated schools, and, if nothing more happens, this will take place complying with the deadline established in the published version of the pre-analysis plan (December 13th).[[1]](#footnote-1) A summary of the program administration is displayed in Table S1.

Regarding the control group, the *ex*-*post* survey has been applied to 11 out of 15 schools. Similar to the treatment group, the closing activity has been re-scheduled so that it takes place during December 2019, and a similar strategy will be followed in case the current circumstances prevent us from administering the survey.

**Table S1. Timeline of the intervention**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **School ID** | **Treatment status** | **No. students** | **Lectures completed before the shock** | **Program completed before the shock** |
| T1 | Treatment | 35 | Yes | No |
| T2 | 33 | Yes | No |
| T3 | 63 | No | No |
| T4 | 57 | No | No |
| T5 | 31 | No | No |
| T6 | 32 | Yes | No |
| T7 | 46 | No | No |
| T8 | 19 | No | No |
| T9 | 45 | Yes | No |
| T10 | 24 | Yes | Yes |
| T11 | 73 | Yes | No |
| T12 | 66 | Yes | No |
| T13 | 67 | Yes | No |
| T14 | 30 | Yes | Yes |
| T15 | 45 | No | No |
| C1 | Control | 23 | N/A | No |
| C2 | 36 | N/A | No |
| C3 | 54 | N/A | No |
| C4 | 23 | N/A | No |
| C5 | 90 | N/A | No |
| C6 | 150 | N/A | No |
| C7 | 44 | N/A | No |
| C8 | 18 | N/A | No |
| C9 | 18 | N/A | No |
| C10 | 54 | N/A | No |
| C11 | 76 | N/A | No |
| C12 | 36 | N/A | No |
| C13 | 30 | N/A | Yes |
| C14 | 106 | N/A | No |
| C15 | 79 | N/A | No |

*Source*: Internal data.

1. *Implications for data analysis*

To date, we have not conducted any exploratory analysis of the *ex*-*post* data that has been collected, the data has actually not been digitized yet. The research team will not analyze anything until all data has been collected.

Because the social unrest in Chile may undermine the environmental preferences of individuals, it is potentially important to control for the potential effects of the strikes on both children and parents’ behavior in the econometric analysis. We do hypothesize that the potential negative effects of the strikes will be larger for parents, compared with children. An explanation for that is the increasing levels of stress that adults experience as a consequence of the violence and insecurity in their surroundings, in addition to the fear of experiencing economic/wellbeing losses (e.g., unemployment, loss of assets, food/medicine shortages, etc.). Consequently, the estimated ATE will be regarded as a lower-bound effect of the intervention. To address the potential effects of the strikes on the behavior of children and parents, we propose including two set of dummy variables. The first dummy variable will control for schools where the closing activity took place before the beginning of the shock (i.e., 2/15 schools). This will be done by adding an interaction term *post\*treated\*closing.* We do expect a positive interaction term. The second dummy variable will account for the schools that completed the lessons embedded in the program before the shock took place (i.e., 9/15 schools). This will be done by adding an interaction term *post\*treated\*lecturing.* We do expect a positive interaction term, but with lower in magnitude compared with the previous interaction term.

Alternatively, we propose conducting robustness checks by removing both treated and control schools closing the program before the start of the shock (i.e., 2 treated and 1 control schools, respectively). This strategy is based on the assumption that both treated and control schools have been equally affected by the social unrest in the country. We propose following a similar strategy to account for the effects of a late closing of the intervention (i.e., schools finishing in early march due to early ending of the academic year). Other situations that may occur after the submission of this document will be addressed by conducting an exploratory analysis.

1. *References and links*

* <https://www.biobiochile.cl/noticias/biobiochile-english/english-chile/2019/10/20/chile-crisis-7-dead-curfew-imposed-in-14-cities-as-government-tries-to-face-riots-looting-arson.shtml>
* <https://www.france24.com/en/20191029-fresh-unrest-in-chile-as-protestors-clash-with-police-despite-cabinet-reshuffle>
* <https://www.france24.com/en/20191023-child-killed-in-mounting-chile-unrest-as-general-strike-begins>
* <https://www.cooperativa.cl/noticias/pais/manifestaciones/violentos-disturbios-en-antofagasta-la-serena-valparaiso-y-concepcion/2019-11-26/223427.html>
* <https://www.24horas.cl/regiones/biobio/40-detenidos-por-saqueos-en-concepcion--3756447>
* <https://www.24horas.cl/regiones/biobio/40-detenidos-por-saqueos-en-concepcion--3756447>
* <https://www.tvu.cl/prensa/tvu-noticias/2019/12/02/seremi-de-educacion-otorgo-dos-opciones-a-los-daem-para-finalizar-el-ano-escolar-en-la-provincia-de-concepcion.html?preview_id=79976&preview_nonce=82a651b5e0&_thumbnail_id=78790&preview=true>

1. Notwithstanding the good disposition of the school principals and students, because of the uncertainty people are experiencing in response to this crisis, we cannot rule out the possibility of not being able to administrate the closing activity in some of the remaining schools (or missing an important share of students), in the current academic year. In case such extreme event takes place, the principals of the schools will allow us to conduct the closing activity of the program at the beginning of the next academic year (i.e., March 2020). This activity will include a summary lecture, followed by the closing activity and the *ex*-*post* survey. [↑](#footnote-ref-1)