Cover letter describing each change made in the proposal

Changes numbered as in Review by Dr. Allen Blackman[1]

Comments and changes:[2]

1. Contribution: I think that the use of the "natural experiment" given by the marked differences in enforcement regimes ("lenient" versus "less tolerant") is an important contribution of this research project that distinguishes it with my previous work. This will be an important contribution to the empirical literature of the study of the environmental enforcement, and it was emphasized in the proposal. Methodological contributions are also pursued, as mentioned in the proposal, in general terms and in particular with respect to the endogeneity problem. But I am not able to say that I have the perfect instrument that the literature has not provided. I do think that the new field work could provide with other controls, such as citizen´s complaints and other determinants of both pollution and inspections, not mentioned in the proposal, that could help identified the deterrence effect of the enforcer's activity. I added this last sentence to the proposal, and erased a previous one. (Page 9).

2. Previously to send the proposal to LACEEP I wrote a formal letter asking for the data to the Director of the Environmental Department of the Municipal Government of Montevideo. After this we had a meeting in which he told me that he agreed. I am now waiting to receive the notification that the permission to access the data was formally approved. I have also talked with the Head of the Office Environmental Enforcement, of the national government. She also agreed to give me the data. I will present the proposal to them in a "seminar" in the following weeks, assist them honorary with a project to redesign the enforcement strategy of environmental norms, funded by the IADB, and present the final results of this project when finished. I cannot say there is no risk that I will not get the data, but I do not think this will happen. I added these comments to footnote 1 in the proposal.

3. I added to the proposal in page 7 and 8: "This information covers a total of seventy-four plants, of a total of 87 inspected by the municipal government at least once during the period. These 87 plants in the municipal government records are estimated to be responsible of more than 90% of organic industrial pollution in the city. I will obtain the information corresponding to the 13 plants discarded in my previous research because a small number of observations to minimize any possible selection effect. But I do not think this is a problem. Of course, the regulators do not monitor the emissions of every economic unit in the city that classifies as an industry. It does not monitor bakeries, or small pasta maker firms, for example. The sample for the first and second period of data will not necessary be the same. I do not know if every plant in the first period sample continue to operate, and I do not know either if any other important plant started operation in any of the years 1997 – 2002, in which case I will include it in the sample."

4. In the section "Other controls" I included the following lines: "Apart from the fixed – effect, I plan to include the variables *Value of exports* and *Industrial Production Index* as possible controls in this regression. The first variable measures the value of the plant´s exports in US$ in

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[1] I tried to limit as much as possible the length of the changes not to extend the proposal too much.
[2] The changes are highlighted in the proposal.

month t. The idea is to control for the possibility that exporting plants would pollute less due to foreign markets requirements. The second variable, the Industrial Production Index, as published by the Nation Statistics Institute, would be included as an attempt to disentangle the effect of the regulatory policy from the overall economic conditions on the pollution level of the firms. Alternatively, the inclusion of a dummy variable equal to one during the months corresponding to the economic crisis, and zero during the months of economic recovery will be included as another way of disentangle this effect."

5. I mention in page 9 of the proposal that that under-reporting could be an issue, based on my previous research. I changed a bit the following sentence: "I will replicate the estimation using only the levels of BOD_5 the plants reported in the months they were inspected or the levels of BOD_5 found by inspectors in samples as a way to see how this affect the estimated coefficients. The previously mentioned levels of BOD_5, albeit not perfect, should provide some evidence of the true effect of enforcement on actual pollution."

6. Discretionary enforcement and sanctions may be an issue according to anecdotal evidence from the field. Fine amounts are determined by law within a range, within which the regulator exercises discretion. But this "regulatory capture" is mostly included in the plant fixed effect (except for the part that may change with time).

7. In page 6 I included the following lines: "I recognize that profits calculated in this way are not an exact estimation of the plant´s profits. In particular, the method ignores the expenditure in raw materials and other intermediate products. Given the inexistence of publicly available information on actual profits of individual firms, an alternative strategy is to include as regressors only the relevant products and inputs prices, as in the reduced form of the optimal choice of the level of pollution. This strategy would also involve, a research on the main inputs used in the production processes of the different plants in the sample, and their corresponding prices over the period. The later will be proxied by the corresponding Index of Retail Prices of National Products, published by the National Institute of Statistics, and the Index of Imported Goods, published by the Central Bank of Uruguay".

8. I am not sure if I correctly understand the countervailing effect mentioned by Dr. Blackman, but if I do, I do not see it as a problem.

9. References added at the end of the proposal.

10. My laptop, bought at the end of 2005 with money from a grant of the Uruguayan government, has 1 MB of RAM. I recall it took 3 - 5 minutes to run every panel regression in Caffera (2007). Now the size of the data set would double. I am not sure, but additional RAM might do the trick.