**Sketch full proposal**

1. **RESEARCH PROBLEM**

**The Problem:** Between the years 1997 and 2001, Uruguayan enforcers of industrial emissions standards in Montevideo opted for a strategy based on frequent monitoring of industrial plants and some tolerance for non-compliance (called “compliance regime” by Garvie and Keeler (1994)), even with respect to relaxed emissions standards. This strategy was part of the “Industrial Pollution Reduction Plan” that gave firms almost two years to invest in abatement technology. (See Caffera, 2004). By this way, regulators sought to decrease the level of noncompliance of the city industrial plants with emissions standards. At the same, one of the most severe economic crises in the country’s history emerged in 1999, almost at the end of the Plan. As a result, regulators opted to continue being lenient with violators after the planned scheduled “grace period” ended. This strategy failed to improve compliance levels with BOD5 emission standards, either on the margin or comparing the situation during the Plan with the situation after the Plan. (Caffera, 2007).[[1]](#footnote-2) Regulators told me in informal contacts I had with them over the last years that they have been applying another enforcement strategy since the crisis ended in 2003 and even more distinctively since the change in municipal authorities in 2005. This strategy is characterized, in their words, by less tolerance for violations and more penalties applied (what Garvie and Keeler (1994) called a “deterrence regime”). Unluckily, we know nothing about how effective have these different enforcement regimes been in increasing the levels of compliance, on the margin and in terms of the total effect. We do not know either how the different characteristics of industrial plants are correlated with higher levels of non-compliance in this new regime.

**Question to be answered:** The objective of this research is to fill this gap in our knowledge. The focus is on providing answers to the following questions: Has the enforcers’ activity been sufficient to significantly improve industrial firms’ levels of compliance with effluent standards under the new enforcement regime? What characteristics of industrial plants are more correlated with higher levels of BOD5 emissions and non-compliance? How effective have been the different enforcement measures taken by regulators over the period in increasing the levels of compliance?

**Policy relevance of the problem:** regulators need to know the answers to these questions in order to be able to use their scarce enforcement budgets more effectively. Regulators’ objective is to increase the overall levels of compliance with emission standards. But they lack they lack the resources to be able to conduct such a statistically rigorous analysis of their past activity. The propose research seeks to provide such an analysis. By estimating the marginal deterrent effects of their inspections, intermediate enforcement actions and fines, and by identifying which plants’ characteristics are correlated with more levels of self – reported BOD5 emissions and non-compliance levels, the proposed work will serve as an essential input into the policy analysis and the potentially necessary re-allocation of resources among industrial plants and among different enforcement activities (inspection, intermediate enforcement actions and fines).

**How the project will contribute to the solution of this problem:** The project will contribute to solve this problem by using a good data set to estimate these parameters in the correct way.

**Scientific relevance:** there has been little research of this type in LA. Verso de la importance of enforcement and the lack of sound empirical work in Latin America que está en la preliminary proposal. If we environmental economists interested in development issues are to say something useful about how to organize environmental policy in these countries we need to conduct more applied research.

**Overview of the literature:** Most in advanced developed countries (citar biblio). A few in China (citas). In LA, poor data. In Uruguay, Caffera (2007), pero no sirve porque es de un período especial.

**2. RESEARCH OBJECTIVES**

The overall purpose of this research project is to test the effectiveness of the enforcement measures on the compliance status of industrial plants in Montevideo, Uruguay. The concrete object of this project is to analyze the correlations between the different enforcement measures taken by regulators and the self-reported levels of organic emissions of industrial plants (as measured by tons of BOD5 emitted) in Montevideo, Uruguay, during the period 1997-2007.

More specifically, the research aims to answer the following questions: Has the enforcers’ activity been sufficient to significantly improve industrial firms’ levels of compliance with effluent standards under the new enforcement regime? What characteristics of industrial plants are more correlated with higher levels of BOD5 emissions and non-compliance? How effective have been the different enforcement measures taken by regulators over the period in increasing the levels of compliance?

In order to answer these questions, the following hypothesis will be tested

**3. RESEARCH METHODS**

**Data set description:**

**Econometrics:**

**4. EXPECTED RESULTS AND DISSEMINATION**

**Expected results:** policy recommendations to regulators to improve compliance levels. In order to access the data I have bbe in touch with regulators. They told me that they are very interested in the project. Apart from the academic paper, other products of the project will be more interdisciplinary reports to regulators to interpret the econometric results, and other type of work they asked for, like evaluating their enforcement strategy with respect to specific industries they target. They are not very interested in the “mean” results given by an econometric analysis.

Another expected result is a methodological development in terms of instruments to use to solve the endogeneity problem (CUALES!!!).

**Dissemination:** publication of paper in a peer-reviewed journal, seminars in regional (ALEAR, EAERE) and world congress (2009??). Seminar presentation to regulators.

1. There is no good information on the level of emissions before the Plan. [↑](#footnote-ref-2)