

# ***INCIDENCE OF POLLUTION EMITTED BY MOBILE SOURCES AT DIFFERENT ALTITUDES IN NORTH OF SANTANDER ON THE ECONOMIC WELFARE OF THE RURAL POPULATION***

OSCAR SANDOVAL ROMERO, Universidad de Pamplona, +46738933061, alexandersandovalromero@gmail.com  
JULIANA MEZA VEGA, Universidad de Pamplona, +573143003839, juliana.mezav@gmail.com  
PETER HUGOSON, Jönköping University, + 46 36101992, peter.hugoson@ju.se  
LINNED TORRES VEGA, Universidad de Pamplona, +573163862944, yaninitvega@gmail.com  
CARLOS GUALDRON GUERRERO, Universidad de Pamplona, + 573208705412, carlos.gualdron@unipamplona.edu.co

## **Overview**

This project wants to analyze the incidence of the pollution emitted by sources (mobile and fixed) at different altitudes in North of Santander on the economic welfare of the rural population and compare it with the welfare degree of the Swedish rural population. In first place, wants to identify the relationship between variation in altitude, pollutant emissions (mobile and fixed) and the degree of welfare of the rural population in Norte de Santander, in the context of Spatial Econometrics. After that, looks compare the relationship between emissions of polluting sources and the degree of welfare of the rural population of North de Santander, and finally wants measure the degree of welfare of the population who lives near of routes 55 and 66 in North of Santander, taking as a reference the results obtained from the application of surveys and those provides by the use of Spatial Econometrics tools.

## **Methods**

The methodology used in this project is of investigative type and its subdivides to descriptive - experimental research. Following the methodological sequence, the variables that influence the economic well-being of the rural population of Pamplona in the measured sectors are determined, and an instrument is applied to quantify the effects that occur due to fuel combustion contamination.

## **Results**

Here determine the effect that the variation of altitude has on the emissions of diesel engines of heavy passenger transport operating in Colombia, these measures were taken in minimum gear or idle on Scania and Isuzu vehicles that are currently the only ones that comply with the Euro IV regulation in the Colombian market, to determine the influence of different atmospheric and topographic conditions when the height above sea level is varied, where most relevant are oxygen concentration, temperature and atmospheric pressure. At the same time, it seeks to measure the economic well-being of the agricultural population of the municipality of Pamplona (Colombia) and the effect that these polluting emissions have on the economic well-being of the rural population. Colombia presents difficult operating conditions for the engines due to sudden changes in altitude, for example, on the Cúcuta - Pamplona route, 70 km are traveled and the variation in altitude is 2000 m.s.n.m. It should be noted that this project has partial results, since the polluting emissions were already taken in Colombia to diesel engines at three different altitudes, 350m.s.n.m, 2343m.n.m and 3268m.s.n.m, and to stoves that use wood as fuel.

## **Conclusions**

The operating conditions for the engines in Colombia are extreme, due to the fact that in very little distance traveled the changes in altitude are considerable. The proximity to mobile sources of pollution produces harmful effects on the population, decreasing their productivity and economic well-being. There is a direct relationship between altitude and amount of pollution emitted by diesel engines and wood stoves.

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