



QUANTITATIVE METHODS TO EXPLAIN THE SMOKING ECONOMIC IMPACT

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Abstract

The quantitative methods may make a precise description about the quantitative variables agreeing with the available information. Thus is possible to measure the relation between several variables too. The effective policies for the smoking control must make a precise estimation from the smoking economic impact especially from the smoking economic burden. That's why several fiscal policies for the smoking control make an intensive use from the quantitative research methods to explain the smoking impact. In all described cases it is necessary to understand wholly the own essence and behavior of the researched variable. Thus will be possible identify the most practice method to obtain the main objective. These research methods have limitation respect to the qualitative methods. However, understand these limitations may make a trustable research agreeing with the researched variable. An example of this is the smoking control.

Keywords: Quantitative Methods, Smoking, Cost.

INTRODUCTION

The quantitative methods are conceived since a positivist point of view. These methods are powerful tools explaining the smoking impact over the health, the economy and the society too (OMS). These methods may make a precise description about the quantitative variables agreeing with the available information. Thus is possible to measure the relation between several variables too (Mateos and Morales, 2002). Much from the more effective policies for the smoking control start measuring the smoking impact based on an intensive use from the quantitative methods. That's why much from the fiscal policies for the smoking control and especially the tributaries policies use these methods extensively these methods to explain the researched variable (Cabeza Barragán, 2016; Linares Pérez Nivaldo, 2019; García Fariñas *et al.*, 2016). In Cuba had been madden several researches to explain the smoking social cost and the smoking impact based on the quantitative methods. In following it show some examples.
^{6,7,8,9,10,11,12,13}

The Multiplication Principle

The smoking economic burden over the Public Health services is given by the happens of three independent successes at same time: the existence of smokers, the existence of the morbidity related with smoking like risk fact for and the effective demand of health services attributable to smoking.¹⁴ The single happens from one of these successes don't carries to the smoking cost for the Public Health. The single absence of one of them neither. Each one of these successes like whole determines the smoking economic burden over the Public Health. Given the condition of be independents and complementary successes, it is possible apply the Multiplication Principle to calculate the smoking economic burden over the Public Health. According to the Multiplication Principle if some success A is given by the happening of

several successes at same time, being these successes independents between them, the probability of happening A is equal to the multiplication of the probability associated to each success determining A.¹⁴ The smoking economic burden over the Public Health in relatives terms is equivalent to the probability of the health spend attributable to smoking. Them, the smoking economic burden over the Public Health in relatives terms is equivalent to the multiplication of the probabilities associated to the existence of smokers, the existence of the morbidity related with smoking like risk fact for and the effective demand of health services attributable to smoking. Similar analyses were explained by authors in previous researches.^{6, 12}

The Benn Diagram

The Benn Diagram show a graphic representation about a group of frequencies of success associated to the researched population. Each success is independent and complementary at same time respect to the others successes. In addition the sum from all frequencies is equivalent to the whole population.¹⁵ In a previous research the authors got three variables which convergence carries to explain the smoking economic burden over the Public Health services. These variables were the tobacco consumption, the mortality by causes related with smoking like risk factor and the Public Health budget in Cuba. The implicated utilization of this diagram might show the behavior from the smoking economic burden over the Public Health budget in the period selected by authors.¹⁵

Ordinaries Less Square

By this method is possible obtain a mathematic equation (or several from them) to explain the behavior from the researched variable in a longitudinal research. This method was utilized in the previous cited research to elaborate each one of the equation from each researched variable. Also was utilized in other research about the relation between the tributary policy and the smoking control in Cuba. Thus was possible suggest a tributary policy for the smoking control.^{9,10}

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Equation system

An equation system shows the analytic description from the relations between a group of variables. According to the own characteristic from the equation system it could be a single solution, multiples solutions or any one.⁷ The over mortality attributable to smoking is given by the difference between the life expectative from smokers and no smokers. Usually these specific variables aren't published by some scientific institutions. That's why the authors made a equation system with demographic and epidemiologic variables related with life expectation for smokers and no smokers people. Thus was possible determine the over mortality is Cuban smokers in 2011.⁷

In all described cases was important take account the following subjects:

- 1) Stronger understanding from researched variable behavior's.
- 2) Identify the quantitative method(s) more appropriate for the research agreeing with the main objective.
- 3) Apply the identified method(s) to the researched variable.
- 4) The interpretation from the results.
- 5) Value the obtained information.

The same principle should be applied to similar researches. In each case take account the whole benefits associate to the quantitative methods should contribute to a useful from them around the researches.

Conclusion

The application from the quantitative methods researching the smoking cost and the smoking impact isn't a single solution. Acknowledging the limitations and potentialities from quantitative methods it may make a trustable research from quantitative variable to explain the smoking impact over the health, the economy and the society too.

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