11ª CONFERÊNCIA NACIONAL DE ECONOMIA DA SAÚDE
PORTO, 8 A 10 DE OUTUBRO 2009, UNIVERSIDADE CATÓLICA PORTUGUESA

ID: **679714**

Estimating dynamic demand for outpatient antibiotics in Italy

L. González, MecoP Institute, University of Lugano, SWITZERLAND;

G. Masiero, Economics and Technology Management, University of Bergamo, ITALY;

M. Filippini, Centre for Energy Policy and Economics, Swiss Federal Institute of Technology, SWITZERLAND;

Objectivos (Objectives):

Resistance to antimicrobial drugs is a growing concern in many countries. Its spread can be reduced by a judicious use of antibiotics, which depends upon the understanding of factors affecting the consumption dynamics and the implementation of effective policy interventions. To some extent, antibiotics are similar to addictive goods since current consumption is reinforced by past use because of bacterial resistance.

Literature on determinants of antibiotic consumption in the community is limited to specific countries and utilises descriptive statistics or static econometric models. Matuz et al. (2006) explore determinants of regional antibiotic use in the community in Hungary, whereas Filippini et al. (2009) focus on small area variations in Switzerland. The first purpose of this paper is to investigate socioeconomic factors affecting regional variations in antibiotic use in Italy.

To our knowledge, dynamic models of demand have not been applied yet to the study of outpatient antibiotic consumption. Tizzi (2005) estimates the dynamic demand for tobacco using Italian data. Al-Faris (2002) uses a dynamic model to analyse the role of capital stocks in determining the growth rate of energy demand. Consequently, the second purpose of this paper is to explore how consumers adjust their current level of antibiotic consumption towards optimal levels over time.

Metodologia (Methodology):

Regional data on antibiotic consumption and determinants are gathered from the National Observatory on Drugs Utilization and the Italian National Institute of Statistics (ISTAT). We construct a balanced panel dataset covering the period 2000-2007 for 20 Italian regions and estimate static and dynamic demand models where antibiotic consumption depends upon demographic and socioeconomic characteristics of the population, the supply of health care in the community, and antibiotic price. Our model builds on dynamic approaches to the demand for goods, for instance cigarettes, and includes variables other than income and price. The bias-corrected least squares dummy variable (LSDVC) estimator is used to estimate the dynamic specification. The static demand model is estimated using GLS and PCSE estimators.

Resultados (Results):

The estimation results are stable across different model specifications. The dynamic model shows that antibiotic use in previous periods has a positive and statistically significant impact on current antimicrobial consumption (0.17). This indicates that the process of adjustment to optimal level of consumption is relatively short. As for the static approach, we find significant and negative elasticity of per capita income (-0.24), which suggests that richer Italian regions are less likely to consume antimicrobials, ceteris paribus. Antibiotic price/copayment (-0.02) has a negative impact on antibiotic consumption. Similarly to previous studies, the proportion of young individuals is positively related to the per capita outpatient antibiotic use (0.02). Finally, physicians' density shows a significant and positive impact on consumption (0.62).

Conclusões (Conclusions):

Dynamic models of antibiotic demand allows for the investigation of determinants of consumption patterns over time and the process of adjustment towards desired levels of consumption. We showed that outpatient antibiotic consumption in Italy exhibits a remarkable degree of persistence. Preliminary results indicate that the process of adjustment to optimal levels of antibiotics use is relatively fast. Since this process of adjustment may capture the impact of public awareness of the bacterial resistance threat, further research is needed to understand whether information or policy interventions to promote the efficient use of antibiotics are really effective.