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The impact of pharmaceutical policy measures: A structural-break approach

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Objetivos (Objectives):

Pharmaceutical spending in many countries has had a steep increase in the last decade. Governments have adopted several measures to reduce pharmaceutical expenditure growth, ranging from increased co-payments to price decreases determined administratively. Promotion of generic consumption has also ranked high in political priorities.

Portugal was no exception to this general trend. We assess the overall impact of the several policy measures on total pharmaceutical spending, using monthly data over the period January 1995 – August 2008 for the Portuguese market. Endogenous structural breaks (time-series) methods were employed.

Metodologia (Methodology):

In our analysis we adopt a structural time series approach, as it provides a consistent framework to identify the impacts of different interventions in time series characterized by trends, seasonalities and potential non-stationary behaviours. This approach has several advantages when compared to others methods such as the ARIMA models. The major components of a time series, such as the trend or the seasonal components can be explicitly modelled and estimated. Also, the model adopted is general enough to allow for different types of non-stationarity. Finally, the extension to a multivariate framework is quite straightforward.

The statistical model adopted allows one to decompose a time series into several unobserved components. The model is known as the Basic Structural Model (see Harvey, 1989) and considers a local linear trend with stochastic seasonality plus noise. In our study, the number, type and location of the structural changes are determined endogenously, that is, they are estimated from the data itself. This is done in the following sequential manner. First, the basic structural model without intervention variables is estimated. Use the auxiliary residuals to identify the location and type of structural changes. The model is then estimated including all the intervention variables that were identified. Finally, only those intervention variables that are significant in this re-estimated model are kept in the final model.

Resultados (Results):

Using monthly data from January 1995 to August 2008, we find that policy measures aimed at controlling pharmaceutical expenditure have been generally unsuccessful. The only two

significant impacts (October 2005 and February 2007) are associated with administratively determined price decreases across the board. The change is essentially a level change, as the underlying trend of the series seems to remain basically the same. Moreover, the impact is greater for Government pharmaceutical expenditure than for total expenditure. The consequence is a transfer of financial burden from the Government to the patients, with no apparent effect on the dynamics of pharmaceutical spending.

Conclusões (Conclusions):

Our findings suggest that, in general, policy measures aimed at controlling pharmaceutical expenditure have been unsuccessful. Two breaks were identified. Both coincide with administratively determined price decreases. Measures aimed at increasing competition in the market had no visible effect on the dynamics of Government spending in pharmaceutical products. In particular, the introduction of reference pricing had only a transitory effect of less than one year, with historical growth resuming quickly.

The consequence of this ineffectiveness is a transfer of financial burden from the Government to the patients, with no apparent effect on the dynamics of pharmaceutical spending. This strongly suggests that pharmaceutical companies have been able to adjust to policy measures, in order to sustain their sales. It remains a challenge for the future to identify firms' strategies that supported continued growth of sales, despite the several policy measures adopted.