

Measure Of Market And Territory Dynamic In Pharmaceutical Industry: An Application Of Shift-Share Technique

Misura Delle Dinamiche Di Mercato E Territoriali In Ambito Farmaceutico: Un'applicazione Della Tecnica Shift-Share

Paolo Mariani,

Facoltà di Scienze Statistiche, Università di Milano Bicocca, via Bicocca degli Arcimboldi, 8 - 20126 - Milano, paolo.mariani@unimib.it

Gianfranco Ventre

Facoltà di Scienze Statistiche, Università di Milano Bicocca, via Bicocca degli Arcimboldi, 8 - 20126 - Milano

Riassunto:

La misura delle dinamiche di mercato e territoriali ha assunto con l'aumento delle informazioni a disposizione importanza crescente, in particolar modo in ambito farmaceutico. Di particolare rilevanza l'attenzione che le aziende hanno posto nella individuazione del contributo che i propri collaboratori e le attività da loro erogate portano alle dinamiche di vendita del prodotto. La Shift-Share Analysis è stata proposta come tecnica di analisi di mercato individuando le tre componenti con significati ed utilizzi diversi dall'approccio classico. Il fine è quello di suddividere il dato di vendita in una componente Nazionale, una Territoriale ed una Competitiva, legata all'effort dell'azienda sul territorio. L'applicazione è reale su dati aziendali.

Keywords: Shift-Share Analysis, Market Analysis

1. Introduction

Physicians enrolled in the Italian Physician Roll are 347.759 (www.fnomceo.it, 2005), the number of health organisations like hospital, public and private, in convention or not with SSN (Health National Service), is 1.410 (www.ministerosalute.it, 2005); pharmacies both private and hospital are 16.808 (www.federfarma.it, 2005). Pharmaceutical enterprises that contact doctors in different ways are, more or less, 262 with a distributors network that supplies the pharmacy of 5.019 drugs for an amount of 8.742 package (www.farindustria.it, 2005). Pharmaceutical enterprises have direct contact with doctors by the REP (Representative, Scientific Informer about Drugs); by means of these representatives the companies communicate and inform about their products¹.

¹ This note, though is the result of a close collaboration, was specifically elaborated as follows: paragraphs 2, 3 e 4 by P. Mariani and 1 by P. Mariani and G. Ventre.

Medical-scientific information, like advertising and promotion, has the goals to improve brand and product notoriety, to improve the perception of product characteristics and, last but not least, to augment the prescriptive propensity.

For the companies it is important to measure territorial dynamics of market in order to verify if the promotional effort have produced the hoped result: a greater market share of their product. Considering available figures and geography the objective will be to apply the Shift-Share Analysis (SSA) in order to isolate the contribution of the single REP to the information and the relative prescription of the product.

The Goal of the job is to apply the Shift-Share technique in order to isolate REP contribute and to describe territorial dynamics of market.

2. Description of new approach at the Shift-Share Analysis

Shift-Share² analysis has been employed by regional scientist for forecasting, strategic planning and policy evaluation. Traditional shift-share analysis decompose country growth into national growth, industrial mix and competitive components (BIDC, 2005). In a marketing model it is possible to translate this approach decomposing the volume of sales growth (SG) into national growth, territorial mix and competitive components. The national component (N) reflects expected growth in an area had it grown at the same rate at the nation.

Territorial mix (T) refers to initial number of patients (sales) of a given area. If an area is growing faster than the national average, it may be due, in part, to a concentration of rapid growth patient's number.

Competitive component (C) drives the comparative advantage of an area company pressure.

The algebraic Shift-Share equation for three component is:

$$SG = N + T + C$$

Where:

$$N = {}_iLS^{t-1} * NS^t / NS^{t-1}$$

$$T = \left({}_iLS^{t-1} * {}_iNS^t / {}_iNS^{t-1} \right) - N$$

$$C = {}_iLS^{t-1} * \left({}_iLS^t / {}_iLS^{t-1} * {}_iNS^t / {}_iNS^{t-1} \right)$$

And

${}_iLS^{t-1}$: volume of local sales in an area (i) at the beginning of the analysis period (t-1)

${}_iLS^t$: volume of local sales in an area (i) at the end of the analysis period (t)

NS^{t-1} : total volume of sales in the nation at the beginning of the analysis period (t-1)

NS^t : total volume of sales in the nation at the end of the analysis period (t)

² For every reference to the technique and the inherent literature it is sent back to the volume of S. Biffignandi (1993)

${}_iNS^{t-1}$: total volume of sales in the area (i) at the beginning of the analysis period (t-1)
 ${}_iNS^t$: total volume of sales in the area (i) at the end of the analysis period (t)

SSA can be used to investigate impacts of company initiatives by comparing responses of a state, regional or county over more periods in a dynamic approach.

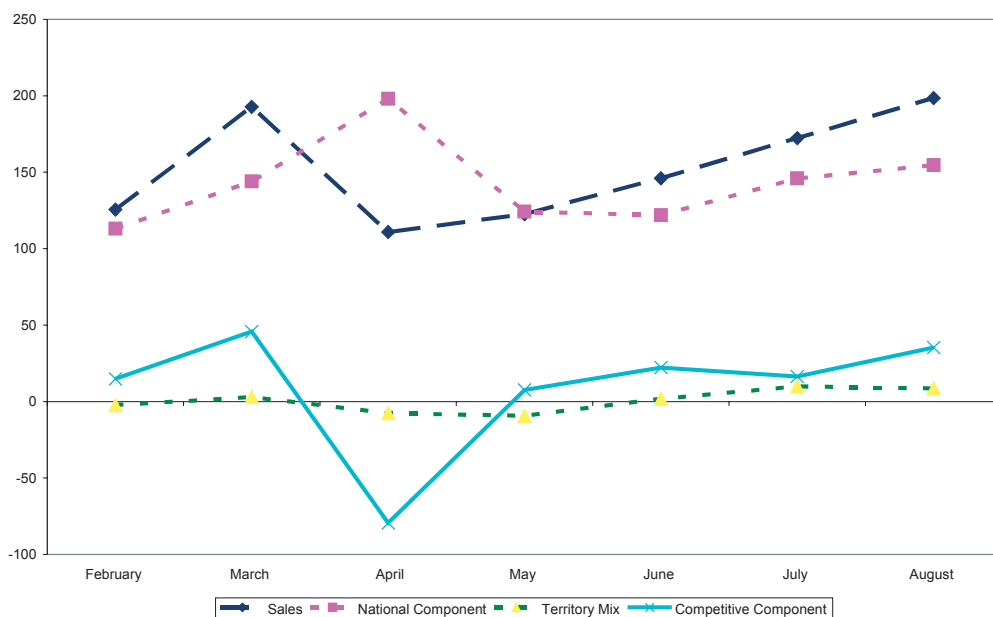
3. Shift-Share analysis on Pharmaceutical sales data

Sell out in unit of the pharmacies inherent the ethical product opportunely blinded has been supplied from the company for the period January-August 2005. Geography of reference is based on 722 territories that represent the USL/USSL at the end of years '80 integrated with the metropolitan areas subdivided with Administrative reference to (Circoscrizioni). We will describe an example related to seven territories that constitute an area. We will use this figures to explain the method.

The typology of product allows to identify the relation a sold piece a dealt patient.

We can see immediately, for example in the area A1, in Figure 1 the main results of decomposition.

Figure 1: Sales distribution by Component and months per Area 1 – year 2005 – nr. of pieces.



Source: Company data

The national component (N) measures how much total sales in a local area have increased due to growth in the national sales during the examined period. The figures represent the amount of sales concerning the areas and the global value. It is possible to see the figure very high in correspondence of April due to a national growth.

Territorial mix (T) identifies fast growing or slow growing sale in local area based on the national growth rates for individual area. The territorial contribution is important in

relation to the value of sales. The T component appears flat and positive in March and June, it is flat and negative in February, it is high and negative in April and May, it is high and positive in July and August. This movement is generated by different promotional actions on the territory, for example meeting.

Competitive component (C) is perhaps the most important component, it highlights a local area leading and lagging counties. For our goal it is interesting to observe the value by Area because in each area work a different Rep.

We suppose to apply the same weight at the promotional pressure activities; in others terms each visit is comparable with another.

We can see immediately, for example in the area A1, the negative value in April (Fig. 1). This figure is related to a decrease of numbers of doctors visit.

In correspondence of April the company has carried out a less number of visits to the doctors than the average of the period and the effect relation/competitive has been exalted.

4. Sum up

The shift-share technique is only a descriptive tool, it is a 'snap-shot' of a local market at two or more points in time.

With this application it is possible to attribute new means to the members, describing them in area Analysis Market: the National Component indicates the part of increase due to the course of the total Italian market; the Territory Component indicates the part of increase due to the course of the total provincial market; Competitive Component indicates the part of increase due to the various action of the activity of information offered from the collaborator for micro-area. Moreover this modality has allowed to identify and isolate the member 'Territorial Scientific Information' influence placing it in the picture of the Competitive Component.

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