

Chapter 34

The Production of Cereals in Greece: A Shift–Share Analysis

Stilianos Alexiadis

Ministry of Reconstruction of Production, Environment, and Energy, Greece

Stilianos Kokkidis

Ministry of Rural Development and Food, Greece

Maria Markou

Ministry of Rural Development and Food, Greece

ABSTRACT

Although there have been numerous studies examining the process of regional economic development using the Shift-Share analysis, the agricultural sector has received far less attention. One important implication of this methodology is the possibility to detect groups of regions with certain growth characteristics. This paper contributes to the literature by applying the technique of Shift-Share over the period 2000-2015 using data for the production of cereals across the 13 regions of Greece. One important conclusion to emerge is that, in the case of Greek regions, applying the taxonomic procedure of Shift-Share analysis, it is possible to identify the necessary policies for the improvement of agricultural production in each region.

INTRODUCTION¹

Shift-Share analysis permits comparison of growth in a specific sector of the economy in different regions. Shift-Share analysis, as Dunn (1960) argues, is conceptually simple and does not ‘make impossible demands upon data’ (p. 97). This paper reports an attempt to apply this method using data for the production of cereals in the 13 regions of Greece. The rest of the paper is structured as follows. Section 2 presents briefly the basic principles upon which Shift-Share Analysis is based. The results obtained by the application of Shift-Share Analysis using data from the regions of Greece are presented in section 3. Section 4 concludes the paper.

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SHIFT-SHARE ANALYSIS: A BRIEF DESCRIPTION

Shift-Share analysis, although an essentially non-spatial technique, has been used extensively in regional economic analysis (Richardson, 1978a). A region, in the context of Shift-Share analysis, is simply a component or a segment of a larger whole (e.g. the national economy). The method of Shift-Share, according to Dunn (1960) is mechanically indifferent to the way the spatial units are defined. Basically, Shift-Share analysis is a simple statistical technique, appropriate for the analysis of regional statistical data. It is employed by practicing regional policy-makers² and planners. In spite of the lack of an explicit theoretical background³ and long-established objections (e.g. Rosenfeld, 1959), shift-share analysis continues to be employed by regional economists and to breed dozens of academic papers (e.g. Thirlwall, 1967; Stilwell, 1969; Esteban, 2000). Its popularity is not difficult to comprehend since, as Richardson (1978) aptly notes, ‘it is very easy to apply – a harmless pastime for small boys with pocket calculators’ (p. 202). This technique may be applied to anyone of several variables or indicators (e.g. per capita income, employment, industrial output, etc). Nevertheless, regional employment is the most common, perhaps owing to the concern of regional policy-makers with employment growth (Richardson, 1978, p. 203).

Regional development takes place in a national framework and depends in part upon forces operating at the national level (Dunn, 1960). Taking this as a premise, Shift-Share analysis attempts to express the factors that cause the differences of growth among regions (Esteban-Marquillas, 1972). Shift-share analysis measures the ‘total change’ in the region’s performance relative to the nation over a given time-period. This ‘total change’ is defined as the region’s actual growth less its ‘expected’ growth, i.e. the change that would take place if the region had grown at the same rate as the nation. This change, called the ‘shift’, can be divided into two components. The first is the ‘proportional shift’, which can be considered as an approximation of the influence of industrial mix (the industrial composition of the nation as a whole) on a particular region. The second component, the ‘differential shift’ is a measure of the degree to which industrial branches in a region grow faster or slower than their national counterparts. Put it in alternative terms, it attempts to capture the impact of the relative locational advantages that explain the tendency for industrial branches to be attracted to or grow faster in some regions than others. Mathematically, the proportional (Ps) and the differential shift (Ds) can be expressed in terms of equations (1) and (2), respectively.

$$Ps_{ir} = \left(\frac{A_{m,t}}{A_{m,0}} - \frac{A_{n,t}}{A_{n,0}} \right) A_{ir,0} \quad (1)$$

$$Ds_{ir} = A_{ir,t} - A_{ir,0} \left(\frac{A_{m,t}}{A_{m,0}} \right) \quad (2)$$

In equations (1) and (2), the variable A refers to a given characteristic either in a region r or to the nation as a whole, n . Subscripts 0 and t denote, respectively, the initial and the terminal time of the analysis. Based on the computed values of Ps and Ds , which may take a positive or a negative sign,

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