Assessing the efficiency of Turkish secondary education: Heterogeneity, centralization, and scale diseconomies

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ABSTRACT

This paper begins with a historical overview of the Turkish educational system. We then use Data Envelopment Analysis (DEA) and econometric methods to evaluate the system's efficiency. In doing so we identify scale diseconomies and relate them to underlying structural characteristics of the system. Selected suggestions on improving performance are offered. The roles of heterogeneity and centralization are also highlighted. Heterogeneity is modeled as an undesirable measure. The linkage between indicators of centralization and scale diseconomies was found to be statistically significant. The authors believe this to be the first study that investigates the impact of systemic characteristics such as heterogeneity and centralized structure on educational outcomes for Turkey. Since the country straddles the Middle East and the Balkans, culturally as well as geographically, it may be of interest to other countries in the region.

1. Introduction

The process of accession to the European Union (EU) by Turkey has, indeed, seen its "ups and downs." As a result, the effort has helped define what the country must do in order to realize membership. From this perspective, improving the quality of its educational system is of particular importance. The matter is urgent since populations in ageing Europe are falling, while Turkey, with its young and growing citizenry,[1] is seen by some as a potential reinvigorator of the Union. See, e.g., [16]. Such change is also likely to contribute to another goal of Turkey's EU accession, namely providing a bulwark against the 'wrong kind of Islam'. This viewpoint, which apparently prevails in many European chancelleries, is found in any number of sources, e.g. Anderson [2].

In order for Turkey to fulfill such substantial expectations, its level of socio-economic development, in general, and the educational quality of its schools in particular, must show considerable improvement going forward. Currently, despite the continued existence of a large, though diminishing, state sector, representing approximately 12% of total employment, the economy is characterized by dynamic development of private industry, services and even agriculture. But there are substantial regional variations within this circumstance. In general terms, the level of economic development declines in the country as one goes from west to east. Thus while the west broadly resembles a West European industrial economy, the east remains, in many respects akin to a developing economy.

Hence, there is a major income inequality across regions, and corresponding variations in their demand for skills. Fretwell and Wheeler [18] provide an insightful overview of the situation. In particular, World Bank [38] research suggests that, in terms of 2007 per capita GNP, Turkey surpasses two new, and neighboring, EU members, Bulgaria and Romania: $8,020 versus $4,590 and $6,150, respectively.

However, as noted, there are wide regional differences within Turkey. According to some estimates, e.g. [34], the per capita GNP of the richest province (Kocaeli, in the northwest) is 10 times that of Agri, situated on the eastern border with Iran. Not surprisingly, there has been substantial east–west migration within the country, placing a heavy burden on education facilities in areas of in-

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[1] The country is larger than Texas and more than twice the size of Germany. According to the Turkish Statistical Institute, the population in 2008 was 71.5 million [34].

Fig. 1. Map of Turkey with all provinces shown.

migration. Indeed, of the country's 81 provinces, Istanbul, a sprawling metropolis, and Turkey's major pole of attraction, has the highest within-province Gini coefficient of 0.43.[2] For purposes of perspective, a national map of Turkey (showing all provinces) is given in Fig. 1.

Despite the noted regional variations in income and levels of development, the system of government and administration is highly centralized and generally "top-down" in character, [17, p. 5]. Such structural qualities help ensure the universal provision of educational services across the country. Indeed, such uniformity is seen as essential for an effective nation-building effort [32,36]. On the other hand, in a large country of diverse environments and levels of development, it is generally more difficult to ensure that local needs are adequately addressed when a centralized command is in place. Moreover, in periods of rapid economic development, or decline, such an administration often cannot react sufficiently quickly to changing priorities. For instance, as will be argued in Section 2.1, although the national trend is towards mixed high schools, the Ministry of National Education (MONE) still has separate directorates for the two genders.

The remainder of this paper is organized as follows. Section 2 provides a historical overview of Turkish secondary education and its salient features. In Section 3, after briefly reviewing the relevant DEA literature, we outline the testing methodology used here, to investigate key implications of Turkey's "top-down" organizational structure. The details of our DEA model, the inefficiency estimates it generates, and test results that appear to link said estimates to the form of governmental structure in the country, are presented in Section 4. The final section is devoted to conclusions drawn from the study.

2. Overview of secondary education in Turkey

2.1. Description

Entry to secondary education in Turkey[3] takes place after completion of eight years of primary and middle education; in theory, at age 15. The normal duration of secondary courses is three years, although a few students take four. In addition, a small number of students undertake a preparatory year before full admission to their secondary education.

Whereas in 1923,[4] there were only 23 general lycees and 20 vocational–technical (voc-tech) lycees under the Ministry of Education, by 1963 the respective totals were 288 and 366; by 1983 1220 and 1356; and, by 2008, these numbers had risen to 3830 and 4450 (see Table 1). The numbers of students and teachers at the national level also grew rapidly, so that, by 2008, there were approximately 2 million students and 106,000 teachers in general lycees, and more than, 1.2 million students and nearly 85,000 teachers in voc-tech lycees. (All figures are taken from TUIK [34].)

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[2] The Gini coefficient is a number between 0 and 1. Zero indicates perfect income distribution equality, and one, inequality.

[3] Parts of this section draw on the excellent surveys of Fretwell and Wheeler [18] and Corradini et al. [15].

[4] The Republic of Turkey was founded in 1923 as the major successor state to the Ottoman Empire [32].