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## Health Policy

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# Physician payment schemes and physician productivity: Analysis of Turkish healthcare reforms<sup>☆</sup>

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## ARTICLE INFO

## Article history:

Received 9 March 2016

Received in revised form 13 February 2017

Accepted 21 February 2017

## JEL classification:

I10

I11

I18

C33

C52

## Keywords:

Efficiency of public hospitals  
 Health transformation program  
 Data envelopment analysis  
 Structural change  
 Model evaluation  
 Part-time work  
 Data envelopment analysis  
 Linear programming

## ABSTRACT

Following healthcare reforms in Turkey, inpatient and outpatient care provided in public hospitals more than doubled from 2003 to 2006. An important component of the reforms has been a shift from a salary based physician compensation scheme to one where fee-for-service component is dominant. The change did not only incentivize physicians to provide a higher volume of services but also encouraged them to practice full-time, rather than dual-time, in public hospitals. Lacking figures on full-time equivalent figures at hospital level, earlier research used head-counts for physician workforce and found technological change and scale economies to be important determinants. We employ data envelopment analysis and find that, under plausible scenarios regarding the number of dual vs full-time physician numbers, most of the change in hospital services may be explained only by the shift to full-time practice. Our estimations find the change in technology and scale economies to play a relatively minor role.

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## 1. Introduction

Starting in 2003, Turkey initiated reforms titled Health Transformation Programme (HTP) aiming to increase access to healthcare services and to improve efficiency of healthcare providers.<sup>1</sup> Among other things, reforms

resulted in significant increase in the use of inpatient and outpatient services in public hospitals. From 2003 to 2006, number of patients cared in public hospitals in Turkey more than doubled from 114 thousand to 254 thousand [17]. In this paper we analyze determinants of the change in hospital output using data envelopment analysis (DEA). We pay attention to a particular aspect of the reform, the change in the payment schemes to specialists in public hospitals and resulting shift from dual-time to full-time

<sup>☆</sup> We would like to thank the editor and two anonymous referees for very helpful comments and Ertunc Aydogdu for research assistance. We acknowledge financial support from Scientific and Technical Research Council of Turkey (TUBITAK), Project Nr. 108K455.

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<sup>1</sup> Ökem and Çakar [20] provide a review of empirical on Turkish healthcare reforms. See OECD/World Bank [21], for an early description of the

reforms and Agartan [1], and Yenimahalleli-Yaşar [28], for critics. Atun et al. [4] and responses to them provide a more recent discussion. On specific aspects of the reforms see Erus and Aktakke [11], for impact on out-of pocket expenditures, Aran and Hentschel [3], and Erus et al. [12], for health insurance coverage.

employment. According to the MoH statistics, 89% of specialists were employed part-time in public hospitals in 2002 and this figure dropped to 44% by 2006 as a result of a new payment scheme which favored full-time practice at public hospitals.

Dual practice is a common practice in medical profession but research is rather limited [18]. González and Macho-Stadler [15] analyze options available to the policy maker and show with a theoretical model that the switch may be harmful for healthcare services in certain instances. While our study is far from making a complete evaluation of the change it sheds light to the impact of the reform on the volume of healthcare services in the short run.

It is of importance to better understand Turkish healthcare reforms since it is an example of health system reforms conducted with consultancy by World Bank. World Bank has been an active player in redesigning health policy in developing countries since 1980s [23]. A number of countries adopted similar reforms and Turkish case has been lauded in some publications, such as Atun et al. [4] for its success in increasing access to healthcare. What has been missing in these analyses, however, are the mechanisms leading to observed outcomes, mostly because of data limitations. Here, we find that payment schemes to specialists and resulting shift from dual-time to full time practice plays an important role in hospital output.

This finding is in contrast from previous research on Turkish healthcare reform which generally relate increased output to technological change. We argue that this results from the omission of full-time and part time distinction due to data limitations and we address the problem using different scenarios. Specifically we show that the results are sensitive to the way physician input is accounted for and that under certain plausible assumptions regarding number of part-time specialists in 2003, most of the gain in productivity is explained not by technical efficiency but by the change in the full-time equivalent number of physicians.

The article is organized as follows. Next section discusses reforms in public hospital system in Turkey briefly. This is followed by the methodology and results.

## 2. Background

Turkey went through a rigorous reform process in health care to improve access and efficiency starting in 2003. One of the main pillars of the reform was the unification of previously segregated public health insurance schemes with the objective of providing universal coverage. With the new scheme a larger portion of the population was covered for care at a significantly larger network of hospitals which started to include private ones. Number of healthcare services provided soon increased sharply and healthcare spending on patient treatment grew by 5.1% per year in real terms from 2003 to 2006 [27].

On the supply side, an important component of the reform process was the new physician payment scheme at public hospitals. The earlier system was largely salary based and a significant proportion of specialists worked dual-time, also operating their own private offices. With the reforms a new payment scheme, called performance

**Table 1**  
Performance evaluation.

Procedure	Points
Inpatient visits (two visits per day)	21
Consultation	10
Emergency outpatient exam	21
Outpatient exam	21
Referred outpatient exam	5
Psychiatry exam (21 points after 10 patients)	30
Electrocardiogram	0
IM injection	0
Valvotomy, mitral valve, closed	1280
Coronary by-pass, carotid endarterectomy,	2500
Splenectomy	500
Appendectomy	420
Natural Birth	143
Cesacan Birth	243
X-ray (two lungs, two direction)	4

Notes: MoH data. Minimum amount of operations required to earn points in parenthesis.

based supplementary payment system (PBSPS), was instituted. In PBSPS each and every procedure performed by specialists are assigned points (see Table 1 below for an example of the points assigned to different procedures in 2006). The amount of supplementary payment is based on the points collected during the month by the specialist. Although there is a component in the system which adjusts the payment according to quality of the hospital, this mostly includes input measures, such as the number of physician offices or presence of certain diagnostic devices, but few externally verified outcome measure other than the result of an annual general patient survey about the hospital.<sup>2</sup> These payments led to an increase of about 200% in specialist pay from 2002 to 2006 in real terms and in 2006 supplementary payment made up about two thirds of the average specialist income [21].

In addition to providing an incentive to increase productivity of physicians, new system also targeted the widespread practice of dual work in public hospitals. Dual-time specialists receive only 40% of the points for services that they provide and hence are entitled to significantly lower pay. As the new public health insurance scheme covered care at private hospitals but not at private offices, demand for these offices went down as well, and a large number of specialists chose to close their offices and work full-time at public hospitals. While 89% of public hospital physicians worked part-time in 2002, this figure dropped to 44% by 2006 [29]. The rate continued to go down in following years and the government passed a new law which effectively banned dual-time practice in public hospitals in 2010.

Other significant changes in this period in public hospitals were consolidation of some public hospitals as the ownership was transferred from different public authorities to the MoH, upgraded health information systems and investments on infrastructure.

We expect the new payment scheme and its impact on the shift to full-time employment to be the main determinant of the increase in services provided in public

<sup>2</sup> See MoH [16] for details.

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