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# Multifactor Productivity in Health Care

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*The following overview introduces a series of articles that focuses on multifactor productivity (MFP) growth in health care. This edition of the Health Care Financing Review begins with a theoretical discussion of the Medicare Economic Index (MEI) and the conceptual reasons for the MFP adjustment incorporated into the Medicare physician fee schedule (MPFS). The issue then moves on to an exploratory data-driven analysis of MFP growth in physicians' offices, and an evaluation of that exploration. Finally, the edition concludes with an empirically-based analysis of MFP growth in the hospital sector, as well as a study related to Medicare physician payment that looks at the individual contributors to recent growth in relative value units (RVUs).<sup>1</sup>*

## INTRODUCTION

In 2005, the Assistant Secretary for Planning and Evaluation (ASPE) and CMS joined together to explore both theoretically and empirically whether the use of an economywide measure of MFP growth was a reasonable proxy for use in Medicare physician ratesetting. This issue of the *Review* is based largely on analyses that were presented at a symposium devoted to this topic in October 2006. The conference, sponsored by ASPE and directed by CMS' Office of the Actuary (OACT), was entitled "Accounting for Physician Productivity in

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<sup>1</sup> RVUs provide the basis for Medicare physician payments. They quantify the relative work, practice expense, and malpractice costs for specific services.

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The author is with the Centers for Medicare & Medicaid Services (CMS). The views or policies expressed in this article are those of the author and do not necessarily reflect the views of CMS.

the Medicare Economic Index (MEI): A Theoretical Perspective and a Data-Driven Exploratory Analysis."

Although the articles presented here are limited to examining MFP growth for physicians and hospitals, they represent timely and important contributions to more general discussions surrounding the possibility of explicitly netting out MFP growth in all Medicare provider payment updates.

## BACKGROUND

The Medicare Program pays many of its providers, including doctors, hospitals, and skilled nursing facilities, on a prospective basis through prospective payment systems (PPS). The various PPS payments are updated annually to account for price growth associated with the specific inputs that are required to provide a given set of medical services. An input price index, or market basket, is constructed for each provider type and can include categories such as wages and salaries, office expenses, and various medical supplies. For each category, cost shares are constructed and price changes are projected. The price forecasts, weighted by their corresponding cost shares, represent the overall expected inflationary pressures for a given industry.<sup>2</sup>

The MEI is one such market basket and represents price inflation faced by physicians.<sup>3</sup> It is also a critical component of the annual update to the MPFS.

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<sup>2</sup> For a more detailed description of the various Medicare PPS market baskets, visit ([http://www.cms.hhs.gov/MedicareProgramRatesStats/04\\_MarketBasketData.asp](http://www.cms.hhs.gov/MedicareProgramRatesStats/04_MarketBasketData.asp)).

<sup>3</sup> Unlike the other PPS payment updates, the MEI is based on historical price growth.

Presently, the MEI is the only market basket that, subsequent to its construction, is explicitly adjusted to account for MFP growth. Productivity changes, as well as other factors, are no doubt considered by policymakers when updating the rates Medicare pays to all of its providers; however, no explicit adjustment for MFP growth is presently made when updating Medicare payments to providers other than physicians.

The idea of explicitly adjusting all Medicare PPS payments to account for MFP growth has long been debated and has recently gained greater visibility. President Bush's fiscal year 2008 budget called for Medicare's "...provider updates to account for gains in providers' productivity and efficiency" (U.S. Office of Management and Budget, 2007). Similarly, the Medicare Payment Advisory Commission (2007) stated in their March report on Medicare payment policy that the Medicare Program should expect all of its providers to be able to reduce the quantity of inputs required to deliver a unit of service while holding constant the quality of care.

## **PRODUCTIVITY ADJUSTMENT IN THE MPFS**

In the first of two contributions from Newhouse and Sinaiko, the authors begin by examining the history of the productivity adjustment in the MPFS, as well as its theoretical underpinnings. They chronicle the evolution of how Medicare has traditionally paid for physician services (from the MEI to the Medicare volume performance standard to the sustainable growth rate now in place), and validate the need for a MFP growth adjustment to account for the double-counting, or even triple-counting, of productivity increases in the current formula.

Newhouse and Sinaiko go on to conduct a literature review of productivity changes for medical care resources. They group the texts into categories that are defined by the way outputs are measured. On the one hand, there is a branch of work that advocates, in order to properly measure productivity in health care, the proper unit of output must be defined as an episode (and not an hour of physician's time, for example). They detail many of the arguments made by supporters of such a measurement, including the position that an episode-based appraisal has the ability to capture input substitution that the more traditional indexes do not. Because these types of measurements cannot be used to determine a physicians' ability to produce RVUs, they determine that this strand of the literature is not applicable for use in adjusting Medicare payments.

The second branch of work examines specific outputs such as number of physician visits or physicians' charges and revenues. Newhouse and Sinaiko indicate that, although they are more relevant for adjusting payments, these measures can lead to suspicious conclusions and contain significant measurement errors.

Finally, the authors discuss four factors that would complicate any physician-specific measurement of MFP:

- Changes in quality.
- Medicare's use of administered prices.
- Constant additions of new codes.
- Variation in productivity across specialties.

They conclude that previous attempts to estimate this type of measure were not sufficiently precise to replace the use of an economywide proxy.

## **PHYSICIANS' OFFICE-SPECIFIC MEASURE OF MFP**

Despite the formidable barriers to constructing a physician-specific measure of

MFP growth, Fisher makes the most comprehensive effort to date. In his article he describes in great detail the data sources, methods, and assumptions that were required to accomplish this task.

The foundation for Fisher's index is the U.S. Bureau of Labor Statistics' (1997) formula for estimating MFP for other industries. Due to the uniqueness of the index and the availability of data (or lack thereof), he makes some deviations from the U.S. Bureau of Labor Statistics' method. In the article, he articulates the assembly of input and output quantity indexes and then merges the two to calculate changes in physicians' office MFP from 1983-2004.

The calculations highlight three distinct periods: 1983-1992, 1993-2000, and 2001-2004. In the first period, physicians' office MFP was estimated to have grown more rapidly than economywide MFP. During the middle timeframe, often characterized as the "managed care era," physicians' office MFP growth slowed considerably and to a rate that was well below economywide growth. Finally, in the most recent period, MFP growth rates for physicians and the economy in general were similar, with the economy's MFP growing two-tenths of 1 percentage point faster than MFP growth experienced in physicians' offices.

## **EVALUATING THE EXPLORATORY INDEX**

The next two articles in the series are critiques of the Fisher index, with the second also containing commentary on the logistics of adjusting for MFP growth when updating Medicare physician payments. In the first article, Newhouse and Sinaiko point out that, although Fisher's effort represents the most thorough of its kind, there are several critical underlying assumptions which may greatly influence its results. These assumptions include the

potential for measurement error in available survey data, uncertainty regarding physician price discounts before 1997, and omitting the potentially material contributions to productivity attributable to capital inputs when physician care is delivered in a hospital setting. The authors also mention other less significant assumptions that individually are not material, but taken together could add further uncertainty to Fisher's results.

At the conference, an expert panel of discussants reviewed the work of Fisher, Newhouse, and Sinaiko. In the second article, Harper, McMenamin, and Dyckman, add valuable context to the theoretical and logistical issues regarding the Fisher index and Medicare physician reimbursement in general. Harper draws many parallels between Fisher's index and the indexes constructed by the U.S. Bureau of Labor Statistics and applauds Fisher's effort. He generally agrees with the Newhouse/Sinaiko evaluation and indicates that ideally, any measure of physicians' office MFP would control for quality enhancements in medical outcomes.

McMenamin posits that estimating a measure of MFP in physicians' offices is far from perfunctory. Obtaining and incorporating the needed data for use in a formulaic structure, and gaining approval to use the results, he contends, is a significant challenge.

Dyckman contributes a historical MEI perspective. He writes that when the productivity adjustment to the MEI was first examined, productivity specific to physicians was not considered. Rather, the productivity achieved by all U.S. workers was preferred on the theory that if doctors were more productive than the economy as a whole, they should benefit. Conversely, if they were relatively less productive, their fees would ascend at a slower rate.

## HOSPITAL MFP GROWTH

Using similar approaches to Fisher's, and with the hope that their work will facilitate more research on the topic, Cylus and Dickensheets describe the construction of two alternative time series of hospital sector MFP growth. They conclude that despite the use of similar data sources and methods for the two options, their results showed considerable differences when comparing both the magnitude and direction of hospital MFP changes.

## DECOMPOSING RVU GROWTH

Rounding out this issue, Maxwell and Zuckerman provide a complementary piece that decomposes RVU growth into resource-based RVUs, site of service, and service quantity and mix.

## CONCLUSION

As one reads through the work presented here, it is evident that multifactor productivity changes, particularly in health

care, are inherently difficult to quantify and measure. The contents herein attempt to better inform policy development and facilitate future productivity-based analyses of the physician, hospital, and other health care sectors.

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