



Effects of payment reform in more versus less competitive markets

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ABSTRACT

Policymakers are increasingly interested in reducing healthcare costs and inefficiencies through innovative payment strategies. These strategies may have heterogeneous impacts across geographic areas, potentially reducing or exacerbating geographic variation in healthcare spending. In this paper, we exploit a major payment reform for home health care to examine whether reductions in reimbursement lead to differential changes in treatment intensity and provider costs depending on the level of competition in a market. Using Medicare claims, we find that while providers in more competitive markets had higher average costs in the pre-reform period, these markets experienced larger proportional reductions in treatment intensity and costs after the reform relative to less competitive markets. This led to a convergence in spending across geographic areas. We find that much of the reduction in provider costs is driven by greater exit of “high-cost” providers in more competitive markets.

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1. Introduction

With the passage of the Patient Protection and Affordable Care Act (ACA), policy makers are increasingly looking to reduce both health care costs and inefficiencies in care by restructuring the ways that Medicare pays health care providers. High costs and inefficiencies have long been attributed to the traditional “cost-based” reimbursement model, where health care providers are paid separately for each service provided. In addition, competition has been shown to *increase* costs under cost-based reimbursement, with health care providers competing for patients based on quality and amenities which generate higher costs (Robinson and Luft, 1987; Zwanziger and Melnick, 1988). In this way, competition may also drive geographic variation in costs of care since there is considerable variation in market concentration across areas.

Over the past 30 years, Medicare has progressively moved away from cost-based reimbursement towards prospective payment,

where a health care provider receives a set payment for an episode of care based on the characteristics of the patient. These payment reforms occurred in 1983 for hospitals and in the late 1990s and early 2000s for providers of post-acute care (e.g., skilled nursing facilities, home health agencies, and inpatient rehabilitation facilities). Extensive evidence shows that the shift to prospective payment had varying effects on health care costs across setting, with more “prospective” reforms and those reducing marginal payments leading to larger cost reductions (Grabowski et al., 2011; Huckfeldt et al., 2014; Newhouse and Byrne, 1988; Sood et al., 2013). In addition, there is some evidence that the relationship between competition and quality (or costs) also changed after prospective payment. For example, data from California show that costs fell more for providers in the most competitive markets after the Inpatient Prospective Payment System was implemented in 1983 (Meltzer et al., 2002). However, the implementation of the Inpatient Prospective Payment System coincided with the implementation of selective contracting and rapid penetration of managed care in California. Thus, it is unclear the extent to which the differential effects on costs were related to implementation of prospective payment versus other contemporaneous trends.

In this paper we revisit the question of whether provider payment reforms, which reduce the marginal reimbursement to health care providers, may have a differential effect depending on the level of provider competition in a health care market. We start

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with the premise that differences in the level of competition across health care markets is an important source of geographic variation in health care costs, with markets with greater competition under cost-based reimbursement having higher costs or intensity of care. Prior research also suggests that greater competition in health care markets with administered prices might lead to socially wasteful spending (Gaynor, 2006). We next develop a stylized model that evaluates how the impact of payment reform on costs or intensity of care might vary by the level of competition in the market. We predict that payment reform reduces costs more in more competitive markets. Thus, it is possible that payment reform can simultaneously reduce costs and reduce geographic variation in care as it will lead to convergence in costs across more and less competitive markets.

We empirically test our predictions by investigating a significant Medicare payment reform for home health agencies: the 1997 Interim Payment System (IPS). The IPS offers an interesting case study as it imposed limits on payments to home health agencies in what was a cost-based reimbursement system, dramatically reducing reimbursement to home health agencies by nearly 50 percent (US Government Accountability Office, 2000). Moreover, there is evidence that post-acute care is a key driver of the still-substantial geographic variation in Medicare spending (Newhouse and Garber, 2013), suggesting significant scope for payment reforms targeted at post-acute care in reducing overall geographic variation in spending. Although several studies have analyzed the effects of IPS, none have looked at how the effects of the IPS on costs or intensity of care varied by the initial level of competition in the market (Huckfeldt et al., 2014; Huckfeldt et al., 2013; Liu et al., 2002; McCall et al., 2001; Murtaugh et al., 2003; Porell et al., 2006). In this paper we add to this literature by analyzing how the effects of IPS varied by the level of competition. We also analyze the pathways or mechanisms that might explain the heterogeneous impact of IPS across markets with different levels of competition.

The empirical results are consistent with the predictions from the theoretical model. We find that there was significant variation in costs by level of competition in the pre-IPS period, with more competitive markets having higher costs. After the IPS, costs declined in all markets but there were larger declines in costs in more competitive markets. The decline in costs was driven by both changes in the probability of any home health use (extensive margin) and a decline in the number of home health days among existing users (intensive margin). As a result of the heterogeneous response to the payment reform, costs and the number of home health days converged in more and less competitive markets and the significant variation in costs or intensity of care by level of competition in the pre-IPS period nearly disappeared in the post-IPS period.

Although the empirical findings are consistent with our theoretical model, a competing explanation for our findings is that IPS payment limits gave greater financial incentives in more competitive markets. We find evidence that IPS payment limits had greater “bite” in more competitive markets. However, we find larger cost reductions in more competitive markets even after controlling for heterogeneity in the reform’s bite across areas. These results suggest that the heterogeneous impacts of IPS by level of competition are not only driven by differences in the bite of IPS payment limits by level of competition, but also by differences in responsiveness by level of competition for a given financial incentive. Finally, we show that the larger impact of IPS in more competitive markets is driven by two factors. First, we observe greater exit of home health agencies in more competitive markets. Second, the home health agencies that exited more competitive markets were more likely to be “high-cost” agencies. Thus, payment reform serves to eliminate some of the most inefficient providers, especially those that are operating in highly competitive markets.

Overall these findings imply that payment reform is not only an important tool for reducing health care costs but it can affect geographic variation in care and health system efficiency by changing incentives and influencing market dynamics. Under the ACA, Medicare is adopting new provider payment reforms such as bundled payment and accountable care organizations, which represent further shifts towards capitation. The extent to which these reforms can further reduce costs and improve efficiency – and potentially reduce variation in health care spending – depends in part on the differential effects of such reforms across markets with different levels of competition.

The rest of the paper proceeds as follows. Section 2 describes the IPS. Section 3 builds a conceptual framework. Section 4 describes the data. Section 5 discusses our empirical strategy and Section 6 discusses the results.

2. Background

From 1989–1996, Medicare home health expenditures more than quintupled, rising from \$3.4 billion to \$19.2 billion. In addition, between 1990 and 1996 the number of beneficiaries using the home health benefit almost doubled from 1.9 million to 3.7 million and the number of visits per patient grew from 33 visits to 76 visits (United States Congress, 2000). Much of this growth was spurred by the 1988 Duggan v. Bowen court case, which drastically broadened the eligibility criteria for the Medicare home health benefit. In response to rising costs, the Balanced Budget Act of 1997 (BBA) mandated that the home health payment policy be reformed. The BBA called for a Prospective Payment System (PPS) and immediately enacted an Interim Payment System (IPS) to address the rising costs while the PPS was being developed. The IPS went into effect in October 1997 and lasted for 3 years before being replaced by the PPS in October 2000.

Before the IPS, Medicare home health payment policy was a cost based reimbursement system subject to a per-visit limit on costs. This limit was set at the lower of an agency’s “reasonable costs” or 112% of the national average of per visit costs. The implementation of IPS imposed stricter per-visit cost limits (reduction in average reimbursement) and introduced a per-beneficiary total annual cost limit (reduction in marginal reimbursement). Specifically, IPS introduced per-visit limits equal to 105% of the national median cost per visit for newer home health agencies that entered the market after 1994. Older home health agencies faced a limit that was a weighted average of the agency’s average per patient costs in 1994 (75%) and their census division per patient costs (25%). This means that firms with costs above the average cost in their census region faced a limit lower than their historical costs, which would be binding; while a firm with costs lower than the average cost in their region faced a limit above their historical costs, which would not be binding.¹ Consequently, we would expect to see a larger reduction in costs after IPS for firms with historical costs above the average cost in their region. A home health agency received payment equal to the lower of its actual costs, its per-visit cost limit, or the per-beneficiary cost limit.

McCall et al. (2001) and McKnight (2006) found a large decrease in home health utilization and the number of visits per user following Huckfeldt et al. (2014) found that the IPS reduced average payments and that this decline in reimbursement decreased utilization of home health services with little change in readmission

¹ For example, if a high cost firm had historical average costs of \$200 and the average cost in the region was \$150, the firm would face a cost limit of \$187.5. Similarly, if a low cost firm had historical average costs of \$100 and was also in the \$150 average cost region, it would face an average per visit cost limit of \$112.5, which would not be binding.

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