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Racial segregation and quality of care disparity in US nursing homes

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ABSTRACT

In this paper, we examine the contributions of travel distance and preferences for racial homogeneity as sources of nursing home segregation and racial disparities in nursing home quality. We first theoretically characterize the distinctive implications of these mechanisms for nursing home racial segregation. We then use this model to structure an empirical analysis of nursing home sorting. We find little evidence of differential willingness to pay for quality by race among first-time nursing home entrants, but do find significant distance and race-based preference effects. Simulation exercises suggest that both effects contribute importantly to racial disparities in nursing home quality.

1. Introduction

Substantial racial disparities in health care utilization and health outcomes are of central concern in the design of US health care policy. Individuals of different races tend to receive care from different sets of providers; and minorities on average receive care from relatively lower quality providers and have worse health outcomes. The factors that have been posited to contribute to these disparities include differences in economic resources, insurance coverage, and preferences on the part of patients, providers, or referral agents.

An emerging strand of literature has focused on the role of geographical differences in the quality of providers in perpetuating racial disparities in health (Baicker et al., 2004, 2005, 2006; Chandra, 2003; O'Connor et al., 1999; Welch et al., 1993). One common argument is that in the presence of residential segregation, blacks are more likely to live in poor neighborhoods where the standard of available care is low; consequently, they receive relatively lower quality care. However, the extent to which this actually translates into racial segregation and racial disparities in quality of care depends critically on how those making decisions trade off geographic distance with other attributes of a provider or facility. Differences in how people of different races value these factors can have major implications for the effects of policies to reduce disparities, but the data and estimation challenges that must be met in order to examine such tradeoffs are high.

The general pattern of disparities in health care is also evident in the context of nursing home care (Smith, 1990, 1993). Indeed, in recent work, Smith et al. (Smith et al., 2007, 2008) show that by some measures nursing homes are more segregated than residential neighborhoods in the US and that differences in measures of nursing home quality by race are both large and persistent. While many of the same mechanisms that drive other types of racial disparities in health also affect nursing homes, there are some aspects of nursing home care that make it a particularly fruitful setting in which to examine these issues. In particular, the nature of nursing home care tends to highlight the importance of race per se rather than unobserved differences in economic well-being or insurance coverage that happen to be correlated

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with race. A substantial fraction of nursing home residents are elderly and enter nursing homes following a hospital stay. Among this population and because of Medicare skilled nursing facility (SNF) care coverage rules, there are effectively no racial differences in payment status at the time of admission in the US. The extent of legacy or future payment effects (e.g., past experience with a provider at a time when payment status may have been different or differences that will emerge after the Medicare coverage runs out) can in part be controlled through a careful selection of patients.[2]

Choices based on the attributes of fellow patients are also likely to be particularly salient in the context of nursing homes because of the residential aspect of care. Race not only distinguishes individuals physically, but reflects differences in culture and behavior.[3] We may expect individuals to prefer the company of people of the same race because of perceptions, whether accurate or not, that they share similar tastes and life experiences and will be treated with greater respect by members of the same race. When choosing a nursing home, patients may prefer to go to one where their friends and family reside or have stayed. Individuals may be more likely to have social experiences with others of their own race than with those of other races, which might translate into race-based preferences when selecting a nursing home. The hospital staff member that helps patients to choose nursing homes may suggest only placements in which he/she believes a patient will be among others of a similar background and may direct patients of different races to different nursing homes. Nursing home management may adopt recruitment or hiring strategies that target a particular race and/or may practice outright discrimination.

In this paper, we develop a simple theoretical framework for considering sources of racial segregation and racial disparities in quality among nursing homes. We highlight, in particular, three different sources of racial segregation. First, individuals may tend to choose nursing homes that are close to their own homes, and thus nursing homes may reflect patterns of racial segregation across neighborhoods. Second, individuals or those who advise them may deliberately choose nursing homes with higher proportions of people of similar race. Third, due to payer status, income, or taste differences, blacks and whites may have differences in the willingness or ability to pay for quality, resulting in a segmented market that breaks along racial lines.

Using a newly available data set that links residence and nursing home information at the individual level, we examine these three mechanisms. The distance-based effect aids in identification of racial preference effects by inducing a relationship between nursing home composition and the racial composition of proximate neighborhoods. We find little evidence of differential ability or willingness to pay for quality by race among new entrants, but do find significant evidence of both distance and race-based preference effects.

Using the estimated model, we then carry out a series of policy simulations. The first simulation exercise suggests that segregation and the quality gap would be much smaller in the absence of race-based preference. The second simulation indicates that an exogenous increase in the quality of care in the lowest-performing nursing homes would reduce both segregation and the gap in quality. The third simulation implies that an increase in nursing home quality affects the payer mix of a nursing home without much effect on the racial composition of patients.

2. Model

We develop a model both to provide basic insight into the qualitative implications of different types of nursing home sorting and to provide a framework for subsequent estimation. The model uses a standard discrete choice structure that is explicitly spatial, incorporates variation in residential composition and nursing home quality, and includes preference weights for different nursing home attributes. We characterize these weights as patient "preferences" in keeping with much of the economics literature on residential choice (Bayer and McMillan, 2005; Bayer et al., 2004) and for expositional convenience, but it is important to note that, in fact, these weights reflect the behavior of three distinct agents: the patients, hospital staff who direct patients toward nursing homes, and nursing home managers. Not only is it difficult to find a compelling source of identification for these different preferences but, for some purposes, the distinction in terms of whose preferences are being estimated is of secondary importance—whether the allocation itself is sensitive to racial composition may be significant in terms of quality disparities regardless of whether this allocation is driven by patients, hospital staff, or nursing home managers. Obviously for other purposes, particularly an assessment of welfare effects or in terms of targeting public policy, the distinction could be critical.

Our model also abstracts from possible interactions between short- and long-stay patients. This distinction allows us to solve formally for an equilibrium racial composition and is well matched with our empirical focus on new entrants, but disregards that most nursing homes have both types of patients. Most patients enter nursing homes for Medicare-paid rehabilitation skilled nursing facility (SNF) care after acute hospitalization events. Medicare covers up to 100 days of SNF care, and the average SNF length of stay was 27 days (Medpac, 2012). About 20% of SNF patients remain at nursing homes after Medicare coverage ends, pay out-of-pocket or by Medicaid or privately purchased supplemental insurance, and are considered long-stay (Intrator et al., 2004; Lau et al., 2005). Currently, about 16% of nursing home residents are short-stay Medicare-paid SNF patients.

Prior research has suggested that nursing homes that are primarily Medicaid-financed are lower quality on average (Carter and Porell, 2003; Gertler, 1992; Mor et al., 2004; Stevenson, 2006). This financing can lead to differences in quality by race to the extent that there are important racial differences in income and wealth among long-stay patients. Even if there is no difference in payment status by race for Medicare-financed short-stay patients, these racial differences in payment status for long-stay patients coupled with distance- or race-based preferences can lead to racial disparities in quality among short-stay patients. Rather than explicitly modeling this process of quality formation and the link between short- and long-stay patients, we capture this long-stay effect by taking nursing home quality as given and, consistent with the data, correlated with neighborhood racial composition. We discuss the implications of this simplification for estimation and for our counterfactual simulation exercises below.

Consider a population of nursing home patients consisting of two races, whites ($r=0$) and blacks ($r=1$), that is distributed exogenously across a series of J residential neighborhoods and who make choices over K nursing homes. The residential neighborhoods are discrete points along a line with neighborhood j located at the point x_j and having a fraction black $\bar{r}_j$. Nursing homes are also discrete

[2] Indeed, Smith et al. report that segregation in nursing homes was little affected by the introduction of Medicare and Medicaid, which improved overall access to nursing homes by African-Americans.

[3] We deliberately blur the distinction between race and culture. In practice, our data includes information on race, but our conceptualization of race-based preferences, as defined below, is largely driven by aspects of culture: shared values, practices, or experiences. Self-reported race reflects at least in part cultural identification and, in any case, we do not have an empirical basis in which to make such a distinction. We will thus use the term race throughout the paper, but it should be understood in this broader context.