

Why do Physician Supply and Demand Models Differ?

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Objective: To illustrate the ways in which physician supply and need projections can vary and the degree to which they can vary.

Population Studied: Physician supply in the United States and, by extension, other developed nations and the researchers and analysts who model those populations

Policy implications: The art and science of anticipating the supply of physicians is regularly practiced with some consistency in method but widely varying results. Why is this? I explore how models can diverge in their predictions. Even baseline populations vary significantly—by age, activity status, participation in training, and location. The initial assumptions are the start of a long process of choosing from among several plausible scenarios. Combining multiple plausible inputs can create clearly implausible results. Entry into the supply would also seem straightforward, but there are multiple points at which one can assume a physician is practicing and practicing in their specialty. Residents and fellows in medicine contribute to caregiving but how much should their contributions be discounted—how much should teachers and supervisors be discounted? The allocation to specialties and the anticipated growth by specialty would seem to follow the various pathways from medical school, into residency and perhaps to fellowships. It turns out that this process is not as clearly linear as assumed. There is "switching and branching" and quite a few physicians change their specialty in the course of a lifetime of practice. It makes eminent sense to count physicians according to their activity, to calculate a "Full Time Equivalent" FTE in order to accurately balance supply with need and demand. That process involves fine grained data that can detail clinical activity by specialty, age, gender, location, setting, and more. The FTE calculation process can accommodate many assumptions and the combination of multiple plausible can create the implausible. Exit from practice is another factor over which there is broad agreement—physicians retire and expire like other people but there are assumptions made about changes in these patterns based on assumptions about the effects of the stock market or of the implementation of new payment or information systems. Very little actual research supports the assumptions of change and the patterns of exit from practice entail relatively unknown shifts in productivity. Yet, specific parameters are applied and generate patterns that shift the balance of need and supply radically. Most in this field would agree that "substitution"—or the use of physician assistants and nurse practitioners in practice—is a major factor in the productivity of physicians, nevertheless, very strong beliefs drive assumptions in one way or another creating very different scenarios when it comes to supply and clinical capacity. There is another substitution process: across specialties, what some call "plasticity." Few would not admit that this occurs but the projections for individual specialties rarely, if ever, account for this. This poster will illustrate these potential causes of variation and suggest how combinations of assumptions can derail the best-designed projection model.