Registered Nurse Labor Supply and the Recession — Are We in a Bubble?

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The countercyclical nature of the health care industry, in which job gains occur faster in recessionary than in nonrecessionary periods, was revealed once again during the 18-month recession that officially began in December 2007. Whereas the national economy lost 7.5 million jobs, the health care industry gained 428,000 jobs. In particular, hospital employment of registered nurses (RNs) increased by an estimated 243,000 full-time equivalents (FTEs) in 2007 and 2008 — the largest increase during any 2-year period in the past four decades. Because of this increase at the beginning of the recession, the decade-long national shortage of RNs appears to have ended.

This sharp rise in RN employment is probably attributable to several factors. During economic downturns, demand for health care continues unabated, and RNs tend to fill existing job vacancies because of their concerns about their personal (or their family's) economic uncertainty and diminished alternative opportunities. In addition, because approximately 7 in 10 RNs are married women, an economic downturn may have a particularly large effect, since many RNs who were not working or were working part-time may rejoin the workforce or change to full-time status to bolster their household's economic security.

The Congressional Budget Office projects that the national unemployment rate will not return to its previous "full-employment" level of 5.2% until 2017. Over the next several years, many RNs who entered the workforce during the economic downturn are likely to leave their jobs once the economy recovers. Yet because there is no empirically based understanding of how recessions affect transitions into and out of the RN workforce, employers and workforce planners are unable to anticipate how many nurses might choose to leave the workforce once a robust jobs recovery begins.

To quantify this relationship, we obtained a grant from the Gordon and Betty Moore Foundation and applied a workforce model that we have used to project the future age and supply of RNs. The model (described in detail elsewhere) predicts RN employment on the basis of estimates of the propensity of people born in any particular cohort.
to enter nursing (cohort effects), the effects of an RN’s age on her or his participation in the workforce (age effects), and changes in the size of the population (population effects). (Data on RN employment come from the Census Bureau’s annual Current Population Survey May Extracts for 1973 through 1978 and its Merged Outgoing Rotation Groups [Annual Earnings Files] for 1979 through 2010.)

We plotted the annual unemployment rate against the difference between the actual overall size of the RN workforce and the workforce size that our model would predict for that year on the basis of cohort, age, and population effects (see graph). When the unemployment rate was high, the RN workforce tended to be larger than predicted. That is, over the past 40 years, the supply of RNs has increased more than expected when the unemployment rate rose and decreased more than expected when the unemployment rate fell. To formally quantify this effect, we incorporated the unemployment rate into our workforce model, allowing RN employment in each year to depend on the national unemployment rate as well as on cohort, age, and population effects. An increase of 1 percentage point in the unemployment rate was associated with a 1.2% increase in the size of the RN workforce (95% confidence interval, 0.5 to 1.9; P<0.001).

On the basis of our workforce model, we estimated the effect of the recent recession on the growth in the number of FTE RNs between 2005 and 2010 and the projected effect of expected decreases in unemployment on the size of the workforce between 2010 and 2015 (see table). According to the Current Population Survey, the number of FTE RNs increased by 386,000 between 2005 and 2010. According to our estimates, more than a third of this increase (146,000 FTE RNs) can be attributed to the increase in the unemployment rate of 4.5 percentage points during the same period, when national unemployment grew from 5.1% in 2005 to 9.6% in 2010. Therefore, had the unemployment rate remained constant at prerecession levels during this period, the growth in the workforce would have been considerably smaller — approximately 240,000.

Thus, according to the model’s projections, this substantial expansion in the RN workforce is largely a temporary bubble that is likely to deflate during the next several years. Unemployment is expected to decrease by 3.5 percentage points between 2010 and 2015, falling to a projected 6.1% by 2015. Because of this projected improvement in the national economy, we estimate that approximately 118,000 FTE RNs will exit the workforce. As a result, the growth in the RN workforce is projected to be much smaller between 2010 and 2015 — an increase of only about 109,000 FTE RNs. In contrast, if the recession unexpectedly persists and unemployment stays constant at its high 2010 level through 2015, the workforce would be projected to grow by more than twice this amount, or 227,000 FTE RNs.

The growth in the RN workforce that occurred between 2005 and 2010 was the largest expansion over any 5-year period observed in our data extending back four decades. But much of this surge appears to have been driven by the deep recession. Eventually, as the jobs recovery takes hold, our analysis suggests that many of the RNs who entered the workforce between 2005 and 2010 are likely to withdraw as unemployment rates fall. This withdrawal will occur at the same time as an expected wave of retirements among
baby-boomer RNs and will further contribute to low levels of growth in the projected workforce during this period. Although the timing of this expected reduction is uncertain, our model suggests that between 2010 and 2015 the RN workforce will grow by only 109,000 FTEs, which would be a smaller 5-year expansion than we have seen in any 5-year period in the past four decades.

Especially in the face of projected shortages by 2015 of both primary care physicians and general surgeons, slower growth in the RN workforce could not come at a worse time. This projected slowdown would occur just when the demand for health care is expected to increase, as an estimated 32 million additional Americans obtain health insurance coverage. Although there was a sharp increase in the number of young people who entered nursing over the past decade, the effect on the size of the RN workforce is not expected to be felt until the latter part of the current decade, and particularly after 2020. Thus, it seems likely that growth in the demand for RNs over the next few years will outstrip the projected growth in the workforce, leading to renewed shortages of RNs in the near term.

Employers and workforce policymakers should not be lulled into complacency by the current absence of a nursing shortage. Instead, they should anticipate that the current positive effect of a weak economy on the RN labor supply is likely to evaporate as the economy improves and that shortages will reemerge. Shortages of RNs may reduce access to care and increase costs as employers raise salaries to attract nurses, potentially imperiling the success of health care reform. Therefore, plans to counter the reemergence of a post-recession shortage and to use existing RNs — both incoming and outgoing — as efficiently and effectively as possible should be a priority for policymakers.

Disclosure forms provided by the authors are available with the full text of this article at NEJM.org.

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