

Investments in Human Capital and the Occupational Mobility of Registered Nurses

JEL: I21, J01, J08, J22, J24, J28, J44, J62

Abstract

This study investigates the occupational choices of registered nurses conditional on the characteristics of those registered nurses. When financial assistance is provided to nurses investing in additional units of human capital through education, it is hypothesized that there are both intended and unintended effects. Employing data from the National Sample Survey of Registered Nurses 2000, the method of multinomial logit analysis is adopted to indirectly test the following hypotheses: that a change in educational preparation will actually decrease the likelihood that a registered nurse will hold a staff nurse position *per se*, increase the likelihood that a registered nurse will hold a nurse faculty position, and increase the likelihood that a registered nurse will hold a position outside of nursing. The findings of this study could lead to important policy implications when deciding the granting of increased funds while addressing the future shortage of bedside caregivers. Moreover, this information may also be useful when making nursing supply projections.

1. Introduction

As the demand for nurses increases in the future, a central concern will be the ability to recruit and retain individuals as registered nurses.¹ In the past, concerns about perceived nursing shortages at market wage levels and the ability to recruit and retain nurses have been important factors in promoting public subsidies for nursing education. In point of fact, some of these concerns have been addressed in the private sector through methods such as hospital tuition reimbursement plans. However, the possibility that an increase in funding to increase the number of nursing students could nonetheless result in a mismatch between the supply of and demand for nurses produces important grounds for a policy debate. After all, part of the financial assistance awarded to nursing students includes subsidizing those who have already made the decision to become nurses. Explanations for the perceived nursing shortages include too few nurses being trained due in large part to a shortage of nursing school faculty. To a greater extent, however, it is argued that the more recent “shortage” is a reflection of nurses’ widespread dissatisfaction with their profession and greater competition from other career opportunities for women.² In part, the explanation for the mobility to these other careers is based on the nurse’s stock of human capital attained through education.

It is possible in the U.S. to become a registered nurse (RN) by making one of three alternative types of human capital investments: a four-year university program (BSN), a two-year associate degree program (ADN), or a three-year diploma program (Diploma). Additionally, all three paths to an RN license include passing a state RN licensing examination called the National Council Licensure Examination for Registered Nurses (NCLEX-RN). Although initially a higher proportion of registered nurses were academically qualified at the Diploma level, more recently the majority of registered nurses are starting their nursing careers educationally prepared at the associate degree level.³ The American Nurses Association (ANA) and the American Association of Colleges of Nursing (AACN) are advocates for the requirement that registered nurses

¹ See Hassmiller & Cozine (2006) and Spetz & Adams (2006).

² See Kimball & O’Neil (2002).

³ Almost 43% of the RN population in 1992 had received their preparation to become RNs in a diploma program in contrast to 1980 when about two-thirds of the nurses had graduated from diploma programs. Between 1980 and 2000, the percentage of nurses who received their basic education in associate degree programs increased from 19% to 40%.

have a minimum of BSN training; reasons include the rapidly changing technology in health care and the movement away from the hospital to other points of delivery of care such as health maintenance organizations, community health and outpatient centers, homes, public schools, and workplaces.⁴ The BSN arguably equips the RN for the more complex role in these alternative settings.⁵

As part of the ANA's Health Care Agenda, education solutions to the nursing shortage include a substantial increase in funding for support of RN-to-BSN and RN-to-MSN education programs.⁶ These programs allow ADN and Diploma educated RNs to continue their education in attaining a BSN or higher in nursing. From this cohort, some would assume faculty roles which would supplement the retiring nurse-faculty workforce, an issue with increasing importance, given the growing percentage of the workforce that is reaching the age of retirement. Therefore, this track of human capital investment and occupational mobility would be considered as an intended effect from the RN-to-BSN and RN-to-MSN programs. However, it is also plausible that a RN invests in additional units of human capital to the BSN and goes no further. This particular track allows for the possibility of an unintended effect from providing public or employer financial assistance for RN-to-BSN education. Such cases include RNs who take advantage of the RN-to-BSN program and move to positions outside of nursing.

The objective of this study is to observe the relationship between additional investments in human capital through education and the occupational choices of RNs.⁷ In particular, we will observe the characteristics of nurses who hold either a *Staff RN* position, an *RN faculty* position, or an *Outside of nursing* position. We hypothesize that as a RN increases her level of education, the likelihood of staying at the bedside

⁴ Between 1996 and 2000 the number of RNs who received their basic education in baccalaureate programs increased at a higher rate than those who received their basic education in associate degree programs (increases of 17% and 13%, respectively).

⁵ Young, Lehrer, & White (1991) find that BSN RNs are relatively more likely to perform complex tasks more frequently and less likely to exhaust large amounts of time in routine, low-skill work.

⁶ <http://nursingworld.org/MainMenuCategories/HealthcareandPolicyIssues/Reports.aspx>

⁷ We cannot implicitly assume that financial assistance is taken advantage of or awarded to all RNs who increase their education. To provide some indication, however, 6% of registered nurses within the NSSRN 2000 were currently working toward a BSN when current educational preparation was the ADN or Diploma degree. When asked how tuition and fees are being financed, roughly 75% answered through personal and family resources. This implies 25% of RN-to-BSN RNs were getting all financial support outside of their own means. Further, the question is stated in terms of "mark all that apply." Therefore, some RNs who are using personal means to support their financial obligation are also utilizing outside sources of funding.

delivering direct patient care as a Staff RN will decline. The intended effect suggests that the probability of being RN *faculty* will increase and the impact thereof will be an increase in the supply of Staff RNs as fewer nursing school applicants are turned away. Consider an alternative unintended effect, namely, a less appealing outcome is that a Staff RN takes advantage of the increase in human capital to move to a position other than RN faculty, perhaps even away from the nursing field entirely.⁸ That is, from the unintended effect, we hypothesize an increase in the probability of holding an *Outside of nursing* position after an RN increases her education to the BSN.

To test each of these hypotheses, this study estimates a multinomial logit model of occupational choice utilizing data from the 2000 National Sample Survey of Registered Nurses (NSSRN). From this model, the study compares the relative probabilities of holding a Staff RN position versus non-Staff RN positions, given an investment in RN-to-BSN education. Finally, this study offers insights into the potential factors leading to additional investments in nursing education. This study is not attempting to determine whether the unintended effect dominates the intended effect. More accurately, this paper seeks to determine whether the unintended effect in fact exists. Knowledge of whether RNs who make additional investments in human capital are more likely to move to non-staff positions, or away from nursing, may be useful when raising questions about the need to increase funding for RN-to-BSN education programs. This information may also be useful when making nursing supply projections.

2. Background

Because there are three educational paths leading to the occupation as a licensed RN, interest originally focused on observing the net gains of one path relative to another. Research shifted to non-monetary factors as key determinants in the decision making process when evidence indicated the returns to education across each path were similar. Studies such as Booton & Lane (1985), Link (1992), Schumacher (1997), and Spetz (2002) show that the returns to a BSN relative to the ADN are not large enough to

⁸ Under this outcome, nurses are moving away from the bedside (decreasing the overall number of direct-patient caregivers) to positions other than nurse educator. *Ceteris paribus*, if there are less nurse educators, some potential nursing students will be declined admission.

compensate for all opportunity costs associated with the baccalaureate degree.⁹ Additionally, Spetz (2002) observes that BSN and ADN degree RNs spend almost the same amount of time on direct patient care and concludes that "...employers have no reason to offer a wage premium if the jobs performed by differently educated RNs are the same."¹⁰ Mennemeyer & Gaumer (1983) disagree with the American Nurses' Association's policy recommendation that the registered nurse licensure should be restricted to future graduates of BSN programs, concluding "...that neither employers nor a large segment of the nursing profession would benefit from recent proposals to require that all nurses obtain the baccalaureate degree."¹¹ Mahoney & Ahlburg (1994) assert that their findings on educational level "...suggest that if government monies are to be used to fund registered nurse education in hopes of increasing the registered nurse supply, it appears most efficient to fund individuals in associate programs as opposed to baccalaureate degree RNs."¹²

Although the study by Spetz (2002) is not able to confirm significant differences in job mobility across education types, the author does find that the likelihood of holding a managerial or administrative position is higher for a BSN RN relative to an ADN or Diploma RN, and suggests that BSN RNs might be relatively more likely to move into employment outside of the nursing profession although within the field of health. Lehrer et al. (1991) find that the probability of moving out of the hospital to non-staff positions increases with experience for all education levels and that BSN RNs are more likely to be promoted to these positions. Additionally, BSN training might lead to significant nonmonetary rewards such as "...opportunities to interact with a wider range of individuals and nonmarket returns to investments in general human capital."¹³ Mahoney & Ahlburg (1994) observe that RNs with relatively more years of nursing education are more likely to leave the profession.

As pointed out by the previous research, there are suggestions that nurses with a BSN may be relatively more likely to leave the field of nursing and pursue other

⁹ Lehrer, White, & Young (1991), Mennemeyer & Gaumer (1983) and Link (1988) actually find, in terms of wage premiums, the ADN is slightly superior to the BSN degree.

¹⁰ Spetz (2002 p. 81).

¹¹ Mennemeyer & Gaumer (1983 p. 32).

¹² Mahoney & Ahlburg (1994 p. 9).

¹³ Lehrer et al. (1991 p. 377).

occupations. Also, to date there is little empirical research on a registered nurse's decision to increase education beyond her basic level of preparation. Because evidence points toward similar returns to education across the three basic paths to becoming a RN, *ceteris paribus*, it is anticipated that RNs select additional investments in human capital with the goal of moving to non-staff positions, perhaps even leaving the nursing profession altogether. Although there is a natural selection problem involved with individuals who choose to pursue a bachelor's versus associate degree in nursing, it is asserted here that the issue is relevant only with respect to the nursing profession and is less applicable with respect to additional investments in human capital. That is, it is argued here that although the decision of basic nursing education can be made with an idea or goal of the nurse's future path within nursing, this decision is made independent of the nurse's ultimate decision to leave the field of nursing, particularly when the nurse is investing in additions to human capital. Moreover, if it is found that nurses are relatively more likely to move to faculty positions after acquiring RN-to-BSN education, it could be argued that the selection issue is evident in these results.¹⁴

3. Human capital theory and investment demand

We follow in part Mincer (1974) and Becker (1975) in our theoretical framework involving human capital accumulation and occupational choice.¹⁵ It is assumed that an individual selects an occupation so as to maximize her expected utility, across all potential occupations. The choice of occupation may vary across individuals for several reasons, most notably due to differences in human capital or differences in tastes, specifically differences in attitudes toward job characteristics.¹⁶

The maximization of expected utility takes place subject to constraints imposed by a *human capital production function*. The inputs to this production function are "own time" as well as purchased goods (education, tuition, books, and so forth). The individual is required to allocate her time between *earning* and *learning*. In addition, Becker (1975)

¹⁴ This is because the interpretation of the coefficient on RN-to-BSN for all occupations will be relative to nurses who don't have a BSN, those who have a BSN initially, and those who have higher than a BSN.

¹⁵ For additional literature on occupational choice, see Siow (1984), Zarkin (1985) and Orazem & Mattila (1991).

¹⁶ Heterogeneity in human capital across individuals allows for differences in wage offers, which could then lead to differences in occupational choice due to differences in expected lifetime earnings.

indicates that current levels of human capital across individuals add to the production of human capital at different rates. This implies that the current level of human capital in an individual is included in the individual's human capital production function. The output associated from this investment is one's own human capital. Therefore, what one typically includes in the individual's human capital production function are the following: (1) the individual's current endowment of human capital; (2) the rate of input of other resources (including schooling and the resources associated with this activity); (3) the individual's own time; and (4) the individual's physical and mental powers.

An extension to the basic model of occupational choice is a transformation of the initial investment decision into a sequential decision process, from which a revision to the initial investment decision takes place at a later point in time. Schömann & Becker (1995) denote this revised period as an *external shock* and provide examples such as technological change, organizational changes, and societal integration. Another plausible explanation for revising the investment decision would be a change in opportunities due to government subsidies or other assistance.

3.1 Human capital investment demand

If it is assumed that educational investments are made strictly for monetary gains, finding evidence that the investment in education for an individual "pays off" includes calculating expected rates of return to educational investments. The benefits of a particular level of education can be estimated by calculating earnings differentials across the age dimension. In general, in the early stages of an individual's lifetime, the value of one's own time is small. However, as the individual ages and continues to make human capital investment decisions, time becomes more valuable as there is less of the total available. Further, investments in human capital carried out in the later stages of an individual's lifetime will add relatively less to total benefits as there is less time to acquire the returns on the investment. Therefore, it should be expected that relatively younger individuals are more likely to estimate higher expected rates of return from investments in human capital, everything else constant.

One can imagine a human capital investment demand curve where each point on the curve represents an alternative expected rate of return to the investment in human capital through education. The level of human capital investments demanded depends on the interest rate, which measures the cost of the funds used to finance investment. For an investment in human capital through education to be profitable, its return must exceed its cost. If the interest rate rises, fewer human capital investments are profitable, and the amount of investments in human capital demanded falls. This implies that the human capital investment demand curve slopes downward and is a function of the expected rate of return and the interest rate, holding non-pecuniary returns on educational investments constant (Renas and Cebula, 1972).

Funding for support of RN-to-BSN education programs decreases the financial cost of education, *ceteris paribus*. The demand for education (human capital investment demand) would increase because the subsidy leads RNs to expect greater rates of return on their investment. This would increase the amount of human capital attained through education (additional investments in human capital) for those RNs included within the distribution where the expected rate of return from the investment is greater than the interest rate. It should be pointed out that we are holding non-pecuniary returns constant as we increase human capital investment demand. Specifically, these include the psychic benefits and costs associated with each level of nursing education.¹⁷ However, it is plausible that RNs will choose additional investments in human capital (because their pecuniary expected rate of return is greater than the interest rate) with the goal of moving to another occupation even if it is not a higher paying occupation. That is, the reason for additional investment is due to a higher pecuniary expected rate of return (due to the decrease in acquisition costs from the subsidy) although the ultimate goal may be non-pecuniary.

¹⁷ In addition, each nursing position is a function of the education level required. Therefore, changes in nursing education may lead to changes in nursing position when the alternative occupations require different levels of education.

4. Data

The data are derived from the 2000 National Sample Survey of Registered Nurses (NSSRN). RNs report their basic nursing program when becoming a registered nurse and, in case any additional degrees are earned, current level of education. RN-to-BSN is defined to occur when the RN's basic program is either the Diploma or ADN and current level of education is the BSN. The categorical dependent variable is derived in part from the RN's response to the question about principle nursing position. RNs *Outside of nursing* include those who were not employed in nursing in 2000 but were employed in an occupation other than nursing. We also disaggregate *Outside of nursing* into those working in a health-related organization and those working outside of health care. The target population of the NSSRN is all RNs with active licenses. This targeting implies that RNs who are not currently working in nursing yet continue to maintain active licensing *could* return to the nursing profession. Spetz (2002) argues that the NSSRN does not provide enough information to analyze the effects of nursing education on non-nursing occupational mobility because surveyed RNs include only those who have active licenses. Effectively, however, this actually facilitates our analysis because it excludes the need to control for any possible relationship between licensing and occupation mobility. Incidentally, for those RNs *Outside of nursing*, the average number of years since last worked for pay as a RN is 9.1 and 8.4 for RNs working within health care and outside of health care, respectively. Furthermore, 17.28% of *Outside of nursing* RNs have been away from registered nursing for less than a year, and 3% never worked as a RN. We assume that the likelihood of returning to work for pay as a RN is a decreasing function of "years since last worked for pay as a RN," despite the fact that respondents are presently licensed.

We use *Potential experience* in the multinomial logit models to control for other factors affecting occupational mobility. The survey did not ask for the respondent's experience working as a nurse; therefore, it is estimated as being the number of years that have elapsed since the RN's graduation from her basic degree program.¹⁸

¹⁸ Spetz (2002) provides correlations, 0.78 and 0.81, between computed experience (as described above) and reported experience from the 1980 and 1984 NSSRN, respectively.

Table 1 displays the summary statistics for the variables used in the multinomial logit model. As a preliminary investigation into the impact of the RN-to-BSN education program on occupational choice, we split the descriptive statistics relative to RN-to-BSN status and provide t statistics to compare differences in means. Except for *Staff RN* and *Advanced Practice RN*, the mean number of all other positions is higher for RN-to-BSN RNs relative to non-RN-to-BSN RNs.

5. The model

In this section, an econometric model of occupational mobility is presented from which the effects of different characteristics on the probability of holding a particular RN position are estimated. Also from this model, derivatives for the probabilities will also be estimated to determine the effect of the RN-to-BSN program on the likelihood of occupational mobility.

A registered nurse will experience one of the seven following alternatives described by j : hold a primary position as a *Staff RN* ($j = 0$), *Advanced Practice RN* ($j = 1$), *RN faculty* ($j = 2$), *RN management* ($j = 3$), *Administrator* ($j = 4$), *RN other* ($j = 5$), or *Outside of nursing* position ($j = 6$).

Alternative j occurs when the latent variable $Y_{ij}^* > 0$, where

$$Y_{ij}^* = \mathbf{X}_i \alpha_j + \delta_j RN - to - BSN_i + \epsilon_{ij} = Z_i \beta_j + \epsilon_{ij}, \quad (1)$$

where i is the individual index, j is the alternative, \mathbf{X}_i is a vector of individual characteristics, and $RN - to - BSN_i$ is a dummy variable indicating a RN's additional investment in human capital through education.

Assuming that ϵ is logistically distributed gives rise to a multinomial logit model in which the underlying probabilities are

$$P_j = \frac{\exp(Z\beta_j)}{\sum_k \exp(Z\beta_k)}, \quad j = 0, 1, \dots, 6 \quad (2)$$

In order to identify the parameters, the normalization $\beta_0 = 0$ is imposed, and the estimated parameters are obtained by maximum likelihood.

A weakness of the multinomial logit model is the independence of the irrelevant alternatives assumption. In general, this property states that the relative probabilities of choosing any two occupations are independent of the attributes of any other alternative in the choice set. We use a formal Hausman (1984) test of the IIA property to observe whether there is any systematic change in the coefficients after we exclude one of the outcomes from the model.

6. Results

None of the Hausman (1984) tests reject the null hypothesis that IIA has been violated.¹⁹ These results suggest that we have effectively categorized each primary position which involves distinct outcomes that are not substitutes for one another.

6.1 RN-to-BSN education and the likelihood of holding specific primary positions

Table 2 provides the results from the multinomial logit models for registered nurses' occupational choice. Because the focus is on potential movement from a Staff RN position to a RN faculty position, or more importantly away from nursing, we do not include the results for the other positions.²⁰ Moreover, to the extent that the RN-to-BSN program lowers the mobility costs for RNs as prospective suppliers of labor for occupations outside of health care, we estimate multinomial logit models for comparison between staff nurses and those holding positions outside of nursing (all, column 3). We also disaggregate between those outside of nursing and within health care and those outside of nursing and away from health care. Of special interest is the sign on the coefficient on *RN-to-BSN*. Because *Staff RN* is the reference group, the positive and statistically significant coefficient on *RN-to-BSN* for both *RN faculty* (column 2) and *All Outside of nursing* (column 3) implies that additional investments in human capital (through education) increase the likelihood that a RN will hold either of those two positions relative to the *Staff RN* position, *ceteris paribus*. It does appear, however, that

¹⁹ We do not provide a table of the results for the Hausman (1984) tests, however, this information is available upon request.

²⁰ These results, however, are available upon request.

the RN-to-BSN program increases the RN's likelihood of being employed outside of nursing but still *within* health care. This is indicated through comparison of the last two columns in Table 2. The coefficient on *RN-to-BSN* is positive and statistically significant for nurses working outside of nursing and within healthcare (column 4), but the coefficient on *RN-to-BSN* is negative, although not statistically significant, for nurses working outside of nursing and not in health care (column 5).

The results in Table 2 indicate that an increase in a RN's education to the BSN increases the probability of both *RN faculty* and *Outside of nursing* jobs. Perhaps more suggestive, however, is to clarify how the RN-to-BSN education affects the *odds* of a RN choosing each primary position relative to the other, holding other factors constant. Consequently, Table 3 contains the odds ratios for each combination. The coefficients from the multinomial logit regression output in Table 2 are also included (along with *p*-values) and the results shown in bold provide an interpretation based on *increases* in odds.

The results in Table 3 reveal that the odds of having a *RN faculty* position relative to a *Staff RN* position are 2.2 times greater for RN-to-BSN nurses than for non-RN-to-BSN nurses, holding other factors constant. Thus, it appears that the RN-to-BSN program includes RNs who will move to nurse faculty positions after acquiring the necessary education. In fact, *ex ante*, some RNs choose a basic level of nursing education below the BSN with the goal of eventually increasing education to the necessary level for a position within nurse faculty. Therefore, not only do these results provide evidence for the hypothesized intended effect that some RNs who acquire RN-to-BSN education will later be interested in faculty opportunities within the nursing profession, the existence of self-selection is also possible. This may be supported by the fact that non-RN-to-BSN nurses include RNs with BSN or higher as their basic nursing education.

If an RN moves from a *Staff RN* position, she might leave nursing for a more desirable setting. As was discovered previously, however, if this setting is outside of nursing, it is more likely to an occupation within health care. As the results in Table 3 show, the odds of having a position *Outside of nursing* within health care relative to a *Staff RN* position are 1.57 times greater for RN-to-BSN nurses than for non-RN-to-BSN nurses, holding other factors constant. Equivalently, the odds of holding a *Staff RN*

position relative to an *Outside of nursing* position within health care are 36% smaller for RN-to-BSN RNs than non-RN-to-BSN RNs, holding other factors constant. These results suggest a possibility that there may be an unintended effect from a subsidy for RN-to-BSN education programs.

6.2 Wages and occupational mobility

Using contemporaneous data to estimate the multinomial logit model includes individual-specific characteristics as factors on occupational choice. As a result, we are not allowing for characteristics of the occupation itself to enter into the RNs decision of primary position; we are unable to determine the possible occupational factors of mobility. However, we provide an indirect method to observe the effect of RN-to-BSN educational training on wages and on the probability of occupational mobility by testing the hypothesis that if the return to human capital investment (education) is relatively higher for a specific nurse occupation, the effect of RN-to-BSN on the probability of moving to that nurse occupation will be higher. In the spirit of Sicherman & Galor (1990) consider the following models:

$$Y_{im}^* = \mathbf{X}_{im}\beta_1 + \delta_m RN - to - BSN_i + \varepsilon_{im}, \quad (3)$$

$$\ln(W_{im}) = \mathbf{X}_{im}\beta_2 + \alpha_m ED_i + \varepsilon'_{im}, \quad (3')$$

where i is the individual index and m indicates primary position. We denote primary position differently in these models because locating in primary position m also indicates the RN moved to this position in 2000 when she was holding a different position in 1999. Because the 2000 NSSRN did not request salary information from RNs outside of nursing, this group is not included in the regressions. Equation (3) is an occupational mobility equation in which the RN-to-BSN (education) effect (δ_m) is primary position-specific. Equation (3') is a standard wage regression. As in equation (3), the education effect (α_m) is primary position-specific.

We intend to test the hypothesis without the possibility that mobility is due to employer-demand factors. Therefore, we exclude from the sample those RNs who changed positions or employers and because primary reasons were due to employer-side

frictions.²¹ The sample for these regressions includes 13.74% who are considered mobile from 1999 to 2000, and approximately 10.3% of these RNs are RN-to-BSN nurses.

The following equation is implied by the hypothesis and will be tested empirically:

$$\text{corr}(\alpha_m, \delta_m) > 0. \quad (4)$$

Estimates of α_m and δ_m are presented in Table 4. The estimated correlation between the effect of education on wage in the primary position and the effect of RN-to-BSN education on the probability of mobility to the occupation is positive (0.43). However, a Spearman rank correlation test does not reject the null hypothesis that these factors are independent. Thus, it appears that while RN-to-BSN training may reduce the mobility costs of RNs, those nurses who invest in human capital and choose to move to other positions within nursing may not be primarily motivated by higher wages. In fact, for those RNs who either moved to another position with the same employer, moved to another employer in the same position, or moved to another employer in another position over the 1999-2000 period, only 8.1% suggested the move was motivated by better pay or benefits.

7. Conclusion

This study analyzes the role of investment in human capital on occupational mobility. The study provides an additional dimension to the existing analysis by exploring the potential decline in mobility costs due to additional investments in human capital. The RN-to-BSN program, defined as a change in nursing education from the Diploma or Associate degree in nursing, to a Bachelor of Science degree in nursing, is analyzed as a potential important factor of the nurse's career path.

As was demonstrated in the theory presented in this paper, RNs may opt for additional education when the expected rate of return increases due to government assistance, effectively lowering the acquisition costs. To the extent that a RN-to-BSN nurse has relatively lower mobility costs, we observe some career changes. As was

²¹ Examples include "was laid off" and "employer reduced the number of RNs on staff." Also excluded are RNs who changed positions due to relocation, disability, illness, or "other" reasons. Roughly 38% of RNs who are considered mobile listed these reasons for change.

shown, it is likely that some RNs will continue the educational path to become RN faculty. This could certainly be considered an intended effect from the public policy if it reduces the number of non-admitted nursing school applicants. Also shown empirically is our hypothesized unintended affect. That is, among RNs who receive RN-to-BSN training, some are likely to move away from nursing *per se*, although most likely within the health care sector.

Unobserved heterogeneity of RNs can play an important role in educational and occupational choice and mobility decisions.²² Such heterogeneity might give rise to occupational mobility because of a matching process.²³ In addition, RNs may select additional investments in human capital to signal their career intent to employers, suggesting a self-selection issue. Future analysis could consider a thorough review of these implications. However, whether RN-to-BSN training elevates the mobility of RNs, or if RNs seek RN-to-BSN training with the intention of promotion, this preliminary evidence suggests that the role the educational program has in lowering the costs of mobility appears to have merit.

If RNs choose to move to another occupation within nursing, such a choice may not be related to wages. Additional coverage of this issue should also include the choices of RNs who move away from nursing. Examining the choices of RNs who were mobile over the 1999 to 2000 period (including RNs who moved away from nursing), fewer than 8% reported higher wages or better benefits were the principal reasons for accepting the new position. In contrast, 34.8% of RNs employed outside of nursing reported that *one* of the reasons for not working in a nursing position was due to better salaries available in current type of position.²⁴

Other important principal reasons for moving to another position in 1999 include; a reduction in the number of RNs on staff (1.4%) and changes in the organization or unit made work more stressful (10.8%). This suggests that the RN-to-BSN could serve as a vehicle for mobility if the RN is motivated by her dissatisfaction with her current

²² Schumacher & Hirsch (1997) find that RNs employed in hospitals realize a wage advantage in part due to higher cognitive ability.

²³ See Sicherman & Galor (1990).

²⁴ Relative to the question asking “mobile” RNs for the “principal” reason why they changed positions, the same question for RNs outside of nursing requested that RNs “mark all that apply.” Because there are no limitations or constraints on the “outside” RNs’ answers, we should expect to observe higher percentages for all reasons.

position, which is arguably a positive function of a stressful work environment, possibly exacerbated by inconvenient or too many hours, a relatively heavy patient load, or concern about safety in the health care environment.

In the 2000 NSSRN, 1.7% of non-BSN RNs are engaged in a RN-to-BSN program. Data in the 2004 NSSRN indicates this number has increased to 2.3%, and for those RNs currently enrolled in a formal education program, almost 13% reported the program is in a non-nursing field with the objective being an alternative career outside of nursing. To the extent that the RN population is growing in its interest or its perception of the importance in the RN-to-BSN educational program, it seems equally important to understand the factors associated with the interest and the possible future implications within the field of nursing.

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Table 1
Summary Statistics

Variable	Description	RN-to-BSN (%)	No RN-to-BSN (%)	t-test
Staff RN	= 1 if Staff nurse	55.1	65.6	10.7
Advanced Practice RN	= 1 if Advanced Practice nurse	3.8	5.1	2.94
RN Faculty	= 1 if Nurse faculty	3.4	2.5	-2.85
RN Management	= 1 if Nurse management	9.4	6.0	-6.78
Administrator	= 1 if Administrator	5.7	4.7	-2.21
RN other	= 1 if Other nursing position	16.9	11.0	-8.85
Outside of nursing	= 1 if not in nursing	5.8	5.1	-1.57
In health care	= 1 if not in nursing and in health care	51.3	43.0	-1.96
Outside health care	= 1 if not in nursing and not in health care	48.7	57.0	1.96
Non-white	= 1 if RN is not white	9.0	11.0	2.24
Female	= 1 if RN is female	96.0	94.0	-4.00
Married	= 1 if RN is married	70.0	72.0	2.90
Children	= 1 if RN has any children	49.0	56.0	6.87
Diploma	= 1 if basic RN degree is diploma	47.0	25.0	-25.84
ADN	= 1 if basic RN degree is associate degree	53.0	40.0	-14.62
BSN	= 1 if basic RN degree is baccalaureate	n/a	35.0	n/a
MSN or Doctorate	= 1 if basic RN degree is master's or doctorate	n/a	n/a	n/a
PreRNdegree	= 1 if RN has other degree prior to nursing degree	9.0	14.0	7.65
Rural	= 1 if RN lives in county outside SMSA	21.0	24.0	3.31
HH income	Categorical variable for household income	5.24	5.08	-5.40
Potential experience	Continuous variable equals 2000 minus year since graduated from basic RN program	21.08 (0.21)	16.06 (0.07)	-21.54

Notes: Data from the National Sample Survey of Registered Nurses 2000. Standard deviations are in parentheses. Categories for hhincome are: 1=\$15k or less; 2=\$15,001-\$25k; 3=\$25,001-\$35k; 4=\$35,001-\$50k; 5=\$50,001-\$75k; 6=\$75,001-\$100k; 7=\$100,001-\$150k; 8= more than \$150k.

Table 2
Maximum likelihood multinomial logit results

	RN faculty		All Outside of nursing		Outside of nursing in health care ^a		Outside of nursing not in health care ^b	
	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.
Intercept	-5.6485	0.307	-3.7525	0.184	-4.8143	0.259	-4.4551	0.262
<i>Education</i>								
RN-to-BSN	0.7918	0.142	0.1833	0.101 ^{0.10}	0.4497	0.137	-0.0659	0.142 ^{ns}
Diploma	-1.9988	0.132	-0.5553	0.085	-0.6629	0.123	-0.4515	0.111
ADN	-1.1575	0.102	-0.3259	0.074	-0.4586	0.109	-0.2118	0.099
MSN or Doctorate	1.0119	0.55 ^{0.10}	1.2850	0.436	1.3742	0.551	1.1858	0.62 ^{0.10}
Pre-RN degree	0.1510	0.126 ^{ns}	0.2421	0.091	0.1432	0.132 ^{ns}	0.3159	0.121
Potential experience	0.0694	0.004	0.0624	0.003	0.0557	0.005	0.0665	0.004
<i>Demographics</i>								
Hispanic	0.0184	0.302	-0.0824	0.235 ^{ns}	0.0992	0.314 ^{ns}	-0.2869	0.343 ^{ns}
Asian	-1.9577	0.348	-0.4172	0.207	-0.4868	0.29 ^{0.10}	-0.3973	0.288 ^{ns}
Non-white	0.3009	0.147	-0.3695	0.141	-0.2224	0.193 ^{ns}	-0.4711	0.198
Female	0.4617	0.233	-0.4336	0.118	-0.7625	0.151	-0.0334	0.183 ^{ns}
Married	-0.1367	0.112 ^{ns}	-0.0878	0.078 ^{ns}	-0.6618	0.112	0.3715	0.106
Children	0.1263	0.088 ^{ns}	-0.2649	0.064	-0.5358	0.094	-0.0348	0.084 ^{ns}
Rural	0.4402	0.094	-0.1010	0.075 ^{ns}	-0.1858	0.118 ^{ns}	-0.0398	0.093 ^{ns}
HH income	0.2663	0.035	0.1847	0.025	0.4191	0.038	0.0188	0.032 ^{ns}
<i>N</i>	26034		26034		25318		25467	

Notes: Data from 2000 National Sample Survey of Registered Nurses. Reference group is Staff RNs. All coefficients are significant at the 5% level or higher unless otherwise noted; a indicates RNs working outside of nursing and not in health care are excluded from the sample; b indicates RNs working outside of nursing and in health care are excluded from the sample; 0.10 indicates significance at the 10% level; ns indicates not significant at the 10% level.

Table 3.

Odds comparing group j vs group m

	All Outside of Nursing			Outside of Nursing in Health Care ^a			Outside of Nursing not in Health Care ^b		
	Coef.	<i>p</i> -value	Odds ratio	Coef.	<i>p</i> -value	Odds ratio	Coef.	<i>p</i> -value	Odds ratio
Staff RN vs RN faculty	-0.79181	0.000	0.453	-0.79808	0.000	0.4502	-0.79042	0.000	0.4537
Staff RN vs Outside of nursing	-0.18328	0.069	0.8325	-0.44973	0.001	0.6378	0.06588	0.643	1.0681
RN faculty vs Staff RN	0.79181	0.000	2.2074	0.79808	0.000	2.2213	0.79042	0.000	2.2043
RN Faculty vs Outside of nursing	0.60852	0.000	1.8377	0.34835	0.070	1.4167	0.8563	0.000	2.3544
Outside of nursing vs Staff RN	0.18328	0.069	1.2012	0.44973	0.001	1.5679	-0.06588	0.643	0.9362
Outside of nursing vs RN faculty	-0.60852	0.000	0.5442	-0.34835	0.070	0.7059	-0.8563	0.000	0.4247

Notes: Data from 2000 National Sample Survey of Registered Nurses. a indicates RNs working outside of nursing and not in health care are excluded from the sample; b indicates RNs working outside of nursing and in health care are excluded from the sample. Odds ratio is the effect of RN-to-BSN on holding occupation j versus occupation m .

Table 4.
The schooling effect on occupational mobility and wage

Primary position	Mobility model RN-to-BSN		Wage model Current education	
	Coef.	Std. Error	Coef.	Std. Error
Staff RN	0.223	0.108	0.021	0.006
Advanced Practice RN	-0.115	0.325 ^{ns}	0.034	0.012
RN faculty	0.301	0.376 ^{ns}	0.071	0.014
RN management	0.703	0.193	0.045	0.011
Administrator	0.526	0.238	0.085	0.010
RN other	0.313	0.171 ^{0.10}	0.031	0.007

Notes: The regressions control for race, experience, quadratic in experience, gender, marital status, presence of children, rural/urban location, and state of employment. Data from 2000 National Sample Survey of Registered Nurses. All coefficients are significant at the 5% level unless otherwise noted; 0.10 indicates significance at the 10% level; ns indicates not significant at the 10% level. Each primary position indicates RN moved to that position between March 1999 and March 2000 and is relative to those RNs who either did not move or moved to any other primary position.