

Are Health Professionals Better Off in Foreign Industries? - On Inter-Industry Wage Differentials and Job-Related Ability

1 Background and scope

The life sciences and health industry (further abbreviated by LHS) may well be a special case among industries, as qualified individuals working in LHS do not seem to suffer much from school-to-work transition problems in times of crisis. Contrary, the literature indicates chronic lack of employable individuals in LHS -- often referred to as bottleneck professions (Hurd, 1973).

One particular cause is that LHS suffers from bad image problems -- so that the industry is not able to attract individuals in health education or training. LHS professionals and associates have to work hard and irregular hours and face, in some cases, life threatening risks on the job. In addition, professions as nursery and midwifery are considered female professions and, thus, less attractive to men (Maestad et al., 2010).

The fact that these bottleneck professions keep to exist in times of crisis are at right angles to the problem of unemployment. One may well argue that those individuals in unemployment should reorient their selves in order to find connection with these bottleneck vacancies (Cedefop, 2010). Therefore, we need to understand better the determinants, and attractiveness, of education and employment in the field of life sciences and health.

2 Literature and framework

We adapt the frameworks of Roy (1951) and Gibbons and Katz (1992) to our study in order to explore how ability could lead to inter-industry wage differentials: (1) we model ability as a continuum ranging from the lowest ability (a_L) to the highest ability (a_H); and assume that ability follows a normal distribution. (2) We use two industries (i.e. the life sciences and health industry denoted by "LHS" and foreign industries denoted by "F"), and two time periods $t \in \{0,1\}$. And (3) we assume that output y_{LHS} is more sensitive to job-related ability than output y_F .

In order to explain inter-industry mobility, Gibbons and Katz (1992) introduce a world of imperfect but symmetric information on job-related ability (i.e. both graduates and employers observe this signal). Graduates have 'noisy' signals denoted by s that reflect his/her ability to

perform in the job. Individuals with high ability signals are then employed in LHS, while individuals with low ability signals in F. After one period of working, the worker reveals its 'true' productivity, and, therefore, may be induced to switch industry from LHS to F in order to find a better match with the employers' requested ability.

Conform to what is observed in the literature and the data, wages earned in F are higher than those earned in LHS ($w_{LHS} < w_F$). Gibbons and Katz (1992, p.520) argue that: "*[...] workers moving in response to good news concerning their abilities are likely to move to jobs with both higher wages and better working conditions, while the reverse is likely to occur for workers moving in response to bad news concerning their abilities.*" In our study, workers with high ability signals would stay in the LHS industry. However, it is hard to defend that they would stay because of higher wages and better working conditions in LHS than in F. It is then not the level of the wages, but the signal of ability, and the search for an optimal job match that would explain inter-industry mobility.

3 Empirical strategy

We focus on the central question: can an individual, with nursing credentials, but who is not employed in the LHS industry, earn lower/similar/higher wages than a nurse in LHS employment? As such, we estimate wage differentials among similar workers in different industries in order to define the attractiveness of LHS.

This empirical strategy is liable to self-selection of individuals into LHS employment. Individuals may have an entirely different motivation to work in the LHS, simply based on gender, race or ethnicity. These determinants of motivation also play a key role in enrolling in education or training necessary to perform in an LHS job. Thus, comparing only individuals with credentials in nursery, midwifery, or care, already enhances comparability between workers in different industries.

Nonetheless, selectivity bias can still occur at the start of employment: individuals can diverge from their initial thought of going into LHS and, consequently, apply for work in foreign industries. This employment decision may be associated with, for instance, individual background characteristics, or job-related abilities, on the one hand, or regional variation in employment opportunities (i.e. the number of vacancies), the availability of hospitals, and structure of the LHS industry, on the other hand. We deal with the former type of selectivity by

using iterative one-to-one matching models. Here, the idea is that individuals with nursery, midwifery or care credentials who work in the LHS industry are matched, based on observed background characteristics and job-related abilities, with individuals having the same credentials, but who are not in the LHS industry. We deal with the latter type of selectivity by using regional fixed effects models. These fixed effects models are particularly useful within the scope of industry-related effects on regional variation in employment opportunities, which are considered difficult to change in the short run (e.g. the availability of hospitals).

4 Data

We use repeated cross-section data over the period 2003 to 2011 on the school-to-work decision of about 6,000 workers in the Netherlands with nursing, midwifery or care credentials one year after graduation of higher education. About one in five of them work in other than LHS industries. The data consist of (1) individual background characteristics including job-related abilities; (2) educational program characteristics; and (3) job characteristics.

5 Results

Our findings show that ability in LHS employment does not pay-off as well as in foreign industries. Health professionals earn, on average, lower wages (i.e. -1 to -2 percent) compared to their peers in foreign industries one year after graduation from higher education. We also indicate that the respective graduates, who have a level of mismatch with their employer, are better off in LHS than in foreign industries. We argue that, if the level of job mismatch would exceed the increase in wages owing to switching from LHS to other industries, then it is no longer beneficial for the respective graduates to switch industries.

6 References

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