Chains and Ladders: Exploring the Opportunities for Workforce Development and Poverty Reduction in the Hospital Sector

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Marla Nelson¹ and Laura Wolf-Powers²

Abstract
In this article, the authors investigate the potential of hospitals to offer low- and semiskilled workers employment and advancement options. This study uses the job chains approach to measuring economic development impacts devised by Persky, Felsenstein, and Carlson to compare hospitals with three other industries highly concentrated in central cities and examines the practical challenges facing workforce development professionals. The findings suggest that growth in hospital employment has the potential to outstrip the impact of growth in accommodations, legal services, and securities and commodities on the well-being of low-income workers and should prompt economic development practitioners to take the sector more seriously as a locus for attention and investment. To maximize welfare gain and distributional equity, economic development policy makers must accompany investments in health care–based economic development both with strategies to promote skills attainment and credentialing among low-paid health care workers and with formal strategies to facilitate upward movement.

Keywords
job creation, labor force issues, job chains, career ladder strategies, hospitals

One of the nation’s most pressing community revitalization priorities is the connection of unemployed and working poor individuals to labor market opportunities. As job decentralization continues in metropolitan areas, poor employment and earning outcomes for residents of segregated cities and inner-ring suburbs contribute to persistent poverty (see Chapple, 2006; Ihlanfeldt & Sjoquist, 1998). At the same time, the retirement of the Baby Boomer generation and other demographic changes are leading economists to predict labor and skills shortages (Toossi, 2002).

One sector already experiencing shortages is health care. Labor shortages are projected to escalate as demand for health care increases primarily in response to the needs of a growing and aging population. Health care employment is concentrated in central cities (Nelson & Gladstone, 2004), and medical institutions are among the largest employers in many urban areas (Harkavy & Zuckerman, 1999). However, these industries have attracted comparatively little attention from economic development researchers.

In this article, we investigate the potential of hospitals, specifically acute care facilities that tend to be located in central cities—including as part of “medical campuses” that also include facilities dedicated to long-term care, outpatient care, biomedical research, and medical education—to offer low- and semiskilled workers employment and advancement options. We do this by applying the “job chains” approach described by Joseph Persky, Daniel Felsenstein, and Virginia Carlson in their 2004 book Does Trickle Down Work?: Economic Development Strategies and Job Chains in Local Labor Markets (see also Felsenstein & Persky, 1999, 2007). Specifically, we combine chain multipliers derived by Persky et al. with industry-specific occupational employment and wage estimates from the Bureau of Labor Statistics to compare hospital-sector job chains to chains in three other industries highly concentrated in central cities: accommodations, legal services, and securities and commodities. Our findings confirm the work of evaluation research on sectoral employment and welfare-to-work initiatives demonstrating that growth in hospital employment has the potential to outstrip the impact of growth in other sectors on the well-being of low-income workers (see Bartik, 1997;

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To affect poverty in low-income communities surrounding health care facilities, investments in hospital-based economic development should be accompanied by strategic attention to workforce training and “career ladder” development. Persky et al.’s (2004) model suggests that it is in the middle of the wage distribution that vacancies generate the greatest welfare impact. Careful attention to training and educational requirements for these occupations, combined with an understanding of opportunities for advancement from job to job in hospitals (and in institutions that might be colocated with hospitals on urban medical campuses), can help ensure that cities and states leverage health care–related economic development investments to the greatest extent possible from the perspectives of both efficiency and distributional fairness.

The Economic Development Potential of Hospitals

Health care is among the largest sectors of the U.S. economy, employing nearly 13 million workers in 2007 in three industries or subsectors: ambulatory health care services, hospitals, and nursing and residential care facilities (U.S. Department of Labor, 2008). The sector has experienced tremendous growth in recent decades and is expected to continue adding jobs to the national economy in response to the long-term health care needs of an increasing elderly population and the general growth of the industry (U.S. Department of Labor, 2007a).

The hospital industry, which includes general medical and surgical hospitals (or acute care hospitals), psychiatric hospitals, and specialty hospitals, has traditionally been the backbone of the U.S. health care delivery system. The shift toward treatment in outpatient care settings due to advances in medical technology, changing consumer preferences, and cost containment measures, specifically, the lowering of government and private reimbursements for inpatient care (Adams, 2003; Engel, 1999; Federal Trade Commission & U.S. Department of Justice, 2004; Langabeer, 2007; Robinson, 1994), has challenged the dominance of hospitals in recent years. Meanwhile, the aging of the population has increased demand for nursing and residential care facilities. Within the hospital sector, the proliferation of single-specialty hospitals, much like for-profit ambulatory care facilities, threatens the financial health of many large, general medical hospitals. Single-specialty hospitals and ambulatory care facilities siphon off the most lucrative procedures and patients, leaving general medical hospitals with decreased revenue to cross-subsidize less profitable services and the provision of uncompensated care (Berenson, Bodenheimer, & Phan, 2006; Federal Trade Commission & U.S. Department of Justice, 2004).

Despite changes in health care delivery toward ambulatory and long-term care facilities, hospitals remain a key component of the health care sector, accounting for more than a third of all health care employment (U.S. Department of Labor, 2008). According to Bureau of Labor Statistics projections, general medical and surgical hospitals will add more than 690,000 new jobs between 2006 and 2016, more employment than that in other detailed health care industry. Economy-wide, general medical and surgical hospitals rank third in terms of projected absolute employment growth (U.S. Department of Labor, 2007a).

Hospitals employ nearly 60% of registered nurses and 30% of nursing aides, orderlies, and attendants, 2 of the top 10 occupations projected to post the largest gains between 2006 and 2016 (U.S. Department of Labor, 2007a). Significantly, workers in these occupations tend to earn more if employed in a hospital setting than if they are employed in ambulatory care or nursing care facilities (U.S. Department of Labor, 2008). Furthermore, recent research on employment trends in hospitals suggests that jobs in the industry are relatively immune to economic downturns and can thus contribute to regional stability (Goodman, 2006). Because hospitals are among the largest employers in many central cities (Harkavy & Zuckerman, 1999), even relatively small changes in hospital employment rates can have significant impacts on local economies.

Recent research on “eds and meds” highlights the contribution hospitals make to cities in terms of expenditures, employment, and real estate development and identifies hospitals as “fixed assets” because of their heavy investment in facilities and specialized equipment (Adams, 2003; Bostic, Lewis, & Sloane, 2007; Harkavy & Zuckerman, 1999). Acute care hospitals are a central component of medical campuses that can anchor inner city neighborhoods and play a pivotal role in training medical professionals, creating and transferring knowledge and innovation (Adams, 2003; Singh & Allen, 2006), and contributing to the export base of the region (Bartik & Ericcck, 2007; Nelson, 2009).

Advocates of “job-centered economic development” (see Giloth, 1998) emphasize the importance of considering economic sectors not for their growth potential alone but in terms of their capacity to provide low- and semiskilled workers not only with viable employment opportunities but also with opportunities for advancement (Conway, 2002; Conway, Blair, Dawson, & Dwork-Muñoz, 2007; Fitzgerald & Green Leigh, 2002; Pindus, Dyer, Ratcliffe, Trutko, & Isbell, 1997; Zandniapour & Conway, 2001). Evidence suggests that health care, in particular its hospitals component, may be a sector particularly well suited to career ladder strategies focused on advancement and mobility as well as the attainment of initial positions (Fitzgerald, 2006; Mitnik & Zeidenberg, 2007; Wilson, 2006; Wilson & Quimby, 2002). For example, hospitals have 24-hour operation, and because of this they
provide more opportunity for entry-level employees to advance into supervisory roles than do industries in which facilities operate on an 8-hour day (Pindus et al., 1997). Additionally, shortages of direct care workers and increasing concern about the quality of the care delivered by frontline health workers create an impetus from within the industry to reduce employee turnover and develop both the productivity of and the returns to human capital at all levels of the health care workforce (Cheung & Aiken, 2006; Dawson & Surpin, 2002; Fitzgerald, 2006; Scala, Hendrickson, & Regan, 2008). There is a convergence occurring as economic development literature uncovers the importance of central city medical facilities to economic growth, workforce development literature stresses the potential of sectoral workforce development strategies in health care, and the literature in health care administration focuses attention on the importance of workforce training and employee satisfaction to quality of care.

A Chain-Wise Analysis

This article contributes to the workforce development stream of the growing literature on health care by using a job chains approach to investigate the workforce development potential of the hospital sector. Namely, it links the job chains approach to measuring economic development impacts with the practical challenges facing workforce development professionals. We use the job chains method to compare hospitals with three other industry sectors that are highly concentrated in central cities and considered to be key components of the urban economic base in the postindustrial United States. In comparing the vacancy chains that new jobs set in motion in each of these four industries, we make a set of inferences about the likely impacts of public sector economic development investments in each of the sectors from the perspective of low-income, entry-level employees. By inferring the welfare impact of economic development initiatives focused on hospitals, accommodations, and two advanced services subsectors, legal services and securities and commodities, we gain insights that we hope will be useful to people who are puzzling through the question of how to conduct economic development that benefits unemployed and working poor city-dwellers.

The job chains approach to evaluating the impacts of economic development was devised by Persky, Felsenstein, and Carlson (2004) and elaborated in their book *Does Trickle Down Work?: Economic Development Strategies and Job Chains in Local Labor Markets* (see also Felsenstein & Persky, 1999, 2007). The chain metaphor has been applied in the housing literature to describe the induced effects of the production of new housing units; by vacating an existing housing unit to occupy a new one, a household triggers a “vacancy chain” that continues until it is terminated by a new entrant into the local housing market. In the same way, the generation of a new job in a local labor market—for example, through the siting of a new facility or expansion of an existing one—sets off a chain of job vacancies. With the creation of new jobs, people already in the regional labor force make welfare-improving moves, vacating their positions. These positions are subsequently taken either by others already in the labor force or by new labor market entrants: unemployed individuals, individuals previously not participating in the labor market, or in-migrants. The length of a chain depends on the number of new vacancies triggered by the creation of a new job. In effect, job chains analysis produces multipliers that project the number of job vacancies of certain types that will be created in reaction to a particular type of new job entering the “system.”

Persky et al. (2004), using data from the Panel Study of Income Dynamics (PSID), developed a probabilistic method of estimating job chain multipliers for the U.S. economy. Working with data on reported job changes over a period of 5 years by respondents to the PSID, they estimated three parameters of job chains. The first was the absolute length of a chain, that is, the total number of vacancies generated as a result of the creation of one job opening at a given wage level. The second was the character of the vacancies generated, that is, the wage level of each vacated position on the chain. The third was the probability that an induced vacancy would be filled by an individual from a lower wage group, from the ranks of the unemployed, or through in-migration. The model provides practitioners with a tool to estimate, for any given economic development project, “not only who gets the newly created jobs but also who moves up to better positions through jobs chains generated by these new jobs” (Felsenstein & Persky, 2007, p. 31).

The main aim of Persky et al.’s (2004) chain estimation exercise is to devise a method for overcoming the shortcomings of traditional economic development impact measurement. However, their analysis leads them to some general conclusions about both the efficiency and the distributional consequences of the job chains initiated by different types of economic development projects. First, they conclude, chains starting with high-skilled jobs are longer than chains initiated with mid- and low-skilled job openings, generating more total vacancies. However, they are less efficient, in that the total welfare gain, being concentrated among workers in higher wage groups and among workers who are already employed, is lower than for shorter chains. Persky et al. come to this conclusion by estimating job changers’ welfare gain in terms of opportunity costs—the difference between their wages in their previous positions and their wages in their new positions, or in the case of unemployed workers, the difference between reservation wages and earnings in new positions. Thus, in a hypothetical example comparing an instruments plant and a consulting firm, the welfare gain per dollar of economic development subsidy is greater for the
instruments plant because the instruments plant creates mid-level job positions that are likely to be filled by unemployed and underemployed people from the surrounding region. The consulting firm, in contrast, generates longer job chains, but these chains are more likely to be truncated by in-migrants to the region; furthermore, the consulting firm creates predominantly high-wage positions filled by people whose opportunity costs are relatively high. Another of Persky et al.'s general conclusions relevant to our research pertains to welfare gains resulting from between-firm moves. Comparing internal (within-firm moves) versus external (between-firm moves) job chains, they found between-firm moves to be particularly important for improving the situation of workers at the lowest rungs of the job ladder.

### Data and Method

As noted above, our analysis draws on the “chain-wise” method developed by Persky et al. (2004). Applying the basic origin–destination matrix and disaggregated multiplier matrix estimated by those researchers, our article estimates the total number of job vacancies in a local economy that would be created through the stimuli of 100 new jobs in four industries. Each of the industries in the analysis has a significant presence in central cities. They are hospitals, accommodations (closely related to the tourist industry), and legal services and securities and commodities (two types of advanced services). In addition to estimating total vacancies generated, we also predict the types of vacancies created and the likelihood that each of these induced vacancies will be filled by discouraged and unemployed residents of the area, by in-migrants, or by individuals “moving up” from less highly remunerated positions.

To begin, we use industry-specific occupational employment and wage estimates from the Bureau of Labor Statistics (U.S. Department of Labor, 2007b) to distribute employment in each of our four focus industries among Persky et al.’s (2004) wage categories (Table 1). The data reveal differences in the occupational structure of the study industries. Within hospitals, employment is heavily concentrated in middle-wage occupations, Groups 2, 3, and 4, with relatively few jobs in the highest and lowest wage groups. In contrast, nearly 90% of all jobs in the accommodations industry fall within the lowest two wage categories, and more than two thirds of jobs in securities and commodities are within the two highest wage categories. In legal services, the bulk of employment is split between Groups 3 and 1.

Our second step is to posit a hypothetical situation in which, through economic development subsidy, 100 new jobs are created in hospitals, accommodations, legal services, and securities and commodities, respectively. We assume that the 100 new jobs generated in each sector track the occupational distribution shown in Table 1: for example, that about 3 of the 100 new jobs in the hospital sector will go to workers in Wage Category 1, about 37 to workers in Wage Category 2, and so on. To characterize the job vacancies in a local economy that will be created through the stimuli of 100 new jobs in the four study industries, we multiply the employment distributions in Table 1 by Persky et al.’s (2004) basic origin–destination matrix and disaggregated multiplier matrix (Tables 2 and 3). Our industry-specific results are displayed in Tables 4 and 5.

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**Table 1. Percentage of Industry Employment by Wage Group, All Occupations**

<table>
<thead>
<tr>
<th>Wage Group</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospitals</td>
<td>3.17</td>
<td>36.53</td>
<td>22.08</td>
<td>33.27</td>
<td>4.79</td>
</tr>
<tr>
<td>Accommodations</td>
<td>0.15</td>
<td>1.69</td>
<td>8.43</td>
<td>21.53</td>
<td>67.69</td>
</tr>
<tr>
<td>Legal services</td>
<td>32.49</td>
<td>3.77</td>
<td>45.71</td>
<td>15.67</td>
<td>1.43</td>
</tr>
<tr>
<td>Securities and commodities</td>
<td>43.26</td>
<td>24.52</td>
<td>20.03</td>
<td>10.72</td>
<td>0.14</td>
</tr>
</tbody>
</table>

Note: Wage groups taken from Persky et al. (2004, p. 81), adjusted to 2007 dollars. Wage Group 1, $37.69 to $59.11; Wage Group 2, $24.24 to $37.69; Wage Group 3, $15.52 to $24.24; Wage Group 4, $9.90 to $15.52; Wage Group 5, $6.28 to $9.90.

**Table 2. Basic Origin–Destination Matrix**

<table>
<thead>
<tr>
<th>Origin Wage Group</th>
<th>New Wage Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>1</td>
<td>41.1</td>
</tr>
<tr>
<td>2</td>
<td>25.0</td>
</tr>
<tr>
<td>3</td>
<td>4.8</td>
</tr>
<tr>
<td>4</td>
<td>2.2</td>
</tr>
<tr>
<td>5</td>
<td>0.0</td>
</tr>
<tr>
<td>Unemployed</td>
<td>2.9</td>
</tr>
<tr>
<td>Out of labor force</td>
<td>4.0</td>
</tr>
<tr>
<td>In-migrant</td>
<td>20.1</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
</tr>
</tbody>
</table>


Note: All values are expressed as percentage of hires in the new wage group. Columns may not sum due to rounding.

**Table 3. Disaggregated Multiplier Matrix**

<table>
<thead>
<tr>
<th>Wage Group</th>
<th>Initial New Job</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>1</td>
<td>1.70</td>
</tr>
<tr>
<td>2</td>
<td>0.90</td>
</tr>
<tr>
<td>3</td>
<td>0.52</td>
</tr>
<tr>
<td>4</td>
<td>0.28</td>
</tr>
<tr>
<td>5</td>
<td>0.08</td>
</tr>
<tr>
<td>Total</td>
<td>3.48</td>
</tr>
</tbody>
</table>

Findings

A basic origin–destination matrix (Table 2), taken directly from Persky et al. (2004), provides estimates of the probability that any particular vacancy along a job chain will be filled by a worker from one of the five wage groups or from one of three residual categories: unemployed, out of the labor force, or in-migrant. Persky et al.’s model contains two important insights about job moves in response to new vacancies. First, most job changes are within wage groups, particularly in Groups 2, 3, and 4. Second, upward job movements are limited largely to workers from immediately lower groups, and the likelihood that a vacancy will be filled by an unemployed worker or individual from out of the labor force tends to increase as wages decrease. This means that the total number of vacancies brought about by the creation of low-wage jobs is significantly lower than the number brought about by the creation of higher wage jobs, because when low-wage jobs are created, job chains are terminated quickly.

The disaggregated multiplier matrix, displayed in Table 3 and also taken from Persky et al. (2004), provides estimates of job chain lengths associated with the creation of a new job and the expected number of vacancies generated at each level. Each Group 1 job, for example, generates a total of 3.48 vacancies, with 1.70 vacancies in Wage Group 1, 0.90 vacancies in Wage Group 2, and so on. From the data we can see that the expected number of vacancies brought about by the creation of low-wage jobs is significantly lower than the number brought about by the creation of higher wage jobs.

With the matrices generated by Persky et al. (2004) from PSID data at hand, we can use our occupational employment and wage estimates to simulate the effects of an economic development investment that creates 100 new jobs in each of the four industries under study. As Table 4 shows, the creation of 100 new jobs in accommodations, legal services, securities and commodities, and hospitals has differing implications for the total number of vacancies ultimately generated. And as Table 5 shows, job creation in each of the four industries also has distinct effects on job seekers at various levels on the wage scale because of differences in the origin characteristics of the workers who occupy newly generated vacancies.

Securities and Commodities and Legal Services

For the two advanced services industries, job chains are long, with 100 legal services jobs initiating 289 vacancies across the economy and 100 securities and commodities jobs generating 316 vacancies (Table 4). Additionally, nearly a fifth (18.91%) of the 289 vacancies set off by new legal services employment and almost a quarter (22.05%) of the 316 vacancies triggered by new securities and commodities employment are occupied by workers who have moved up from a lower wage group (Table 5). This suggests that the mobility effects set off by new employment in these sectors are substantial—significantly more than for accommodations and somewhat more than for hospitals. However, a close examination of Table 5 reveals that these mobility effects are concentrated—particularly in the case of securities and commodities—at the upper end of the wage scale. Well more than half of all workers who advance into a higher wage group in securities and commodities move up into the two highest earnings categories. The extensive education, training, and experience requirements of Group 1 and Group 2 jobs in the industry—which include bankers, financial analysts, and financial specialists—put these jobs well beyond the reach of the workers for whom mobility is of greatest concern from a public policy perspective.

In the legal services case, 7.64% of total vacancies are filled by employees moving up into mid-range positions in Wage Group 3. Training and educational requirements for Group 3 positions range from a high school diploma for legal secretaries to an associates or bachelor’s degree for paralegals and legal assistants. The opportunity for mobility beyond Wage Group 3 is limited given the smaller share of legal services vacancies in Wage Group 2 and the requirement of an advanced degree, generally in law, for most Level 1 positions. Although high-wage jobs in legal services and securities and commodities create longer job chains and thus generate more vacancies than lower wage jobs, the trickle-down effect on low-wage workers, the unemployed, and discouraged workers is limited.

Accommodations

Vacancy chains are shortest for the accommodations industry, with the generation of 100 new jobs in the sector resulting in just 182 job vacancies across the economy (Table 4). The relatively short vacancy chains set off by new positions in accommodations are due to the large share of the new vacancies that are filled by the unemployed (20.52%) and individuals out of the labor force (23.34%; Table 5). Of the four study industries, accommodations vacancies have the greatest immediate impact on a region’s unemployed and discouraged workers. However, most of the vacancies in the industry are in the lowest paid positions. Few people move directly from unemployment or out of the labor force into Group 4 or higher wage vacancies, and opportunities for advancement into better paying jobs within the industry are limited. Workers previously employed in a lower wage group fill only 5.38% of the 182 job openings set off by new positions in accommodations. The mobility rate declines as wages increase, indicating that most opportunities for advancement set off by accommodations employment are confined to positions on the lower rungs of the wage ladder.

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With the matrices generated by Persky et al. (2004) from PSID data at hand, we can use our occupational employment and wage estimates to simulate the effects of an economic development investment that creates 100 new jobs in each of the four industries under study. As Table 4 shows, the creation of 100 new jobs in accommodations, legal services, securities and commodities, and hospitals has differing implications for the total number of vacancies ultimately generated. And as Table 5 shows, job creation in each of the four industries also has distinct effects on job seekers at various levels on the wage scale because of differences in the origin characteristics of the workers who occupy newly generated vacancies.

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Table 4. Total Vacancies Created by 100 New Jobs by Wage Group and Industry

<table>
<thead>
<tr>
<th>Wage Group</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>Sum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospitals</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5.4</td>
</tr>
<tr>
<td>Total vacancies (%)</td>
<td>1.9</td>
<td>28.4</td>
<td>26.6</td>
<td>32.7</td>
<td>10.4</td>
<td>100.0</td>
</tr>
<tr>
<td>Accommodations</td>
<td></td>
<td></td>
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<tr>
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<td>2.0</td>
<td>9.5</td>
<td>25.9</td>
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<td>36.6</td>
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<td>100.0</td>
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<td>25.8</td>
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Note: Calculated by authors with data from Tables 1 and 3.

### Hospitals

The vacancy chain associated with 100 new jobs in the hospital sector is shorter than those associated with legal services and securities and commodities (though with 282 jobs, it is not significantly shorter than the chain for legal services). Moreover, in comparison with accommodations, it absorbs smaller shares of people from out of the labor force (10.73%) and from the ranks of the unemployed (11.44%). However, vacancies initiated by hospital employment growth absorb larger shares of unemployed and out-of-labor-force individuals than do the two advanced service industries under study.

Furthermore, Table 5 indicates that these vacancies are evenly distributed in the three middle categories of the wage scale (Groups 2, 3, and 4) as opposed to being concentrated at the top (as with advanced services) or at the bottom (as with accommodations). Thus, the vacancies initiated by employment growth in hospitals accomplish two things simultaneously: they have a substantive impact on unemployed and discouraged workers, and they create work in the middle of the wage scale, in moderately skilled, moderately paid positions.

It is not possible to determine from this data the extent to which the vacancies induced by growth in the hospital industry occur within the hospital sector itself. However, it appears both from Table 5 and from the basic occupational data in Table 1 that the “thick” employment distribution of the industry lends itself well to career ladder strategies aimed at increasing mobility from Wage Group 5 to Wage Group 4, from Group 4 to Group 3, and from Group 3 to Group 2. An examination of the training and educational requirements of hospital occupations further supports the conclusion that there are opportunities for advancement within the industry (Table 6). Although many Group 2 hospital occupations, such as registered nurses, require a bachelor’s or associates degree, a significant number of jobs in the industry, including licensed practical and licensed vocational nurses, respiratory therapists, medical technicians, and surgical technologists—all in Wage Group
are available to individuals with vocational training, industry-approved certifications, and/or associates degrees. Many entry-level patient care positions, including nursing aides and assistants (Wage Category 4) require only a high school diploma or equivalent. Through experience and/or additional training, workers in Wage Group 3 and 4 occupations can advance into higher paying positions. This conclusion is supported by Mitnik and Zeidenberg (2007), who find, using Current Population Survey data, that those without college educations have higher upward mobility rates in hospitals than in other service industries.

### Creating Successful Hospital-Centered Career Initiatives

Our finding that job chains touched off by growth in hospital employment are more effective than job chains triggered by employment growth in hotels, legal services, and securities and commodities at generating welfare gains for low-income groups should prompt economic development practitioners to take the sector more seriously as a locus for attention and investment. This finding supports the ample research cited in the reference list that asserts that the structure of employment...
in hospitals is conducive to career ladder strategies. But to identify an industry as fertile from a career ladders perspective is only a first step. To maximize welfare gain and distributional equity, economic development policy makers must accompany investments in health care–based economic development both with strategies to promote skills attainment and credentialing among low-paid health care workers and with formal strategies to facilitate upward movement.

A general labor market intermediation model proposed by Giloth (2003, 2004) and Kazis (2004) suggests that workforce development institutions must meet several criteria to improve the earnings prospects of less skilled job seekers. They must pursue a “dual-customer” approach, responding both to employers in need of reliable, productive workers and lower turnover costs, and to low-income individuals seeking to earn higher wages. Rather than simply matching workers to jobs, they must focus on improving the employability of workers (often through training and credentialization) and the quality of jobs (by exerting influence on employers to think differently about their hiring and internal advancement practices). They must also combine funding streams, often supplementing federal workforce grants with state and federal economic development promotion dollars and private foundation resources.

Scholars and practitioners focused on health care labor markets have adapted, expanded on, and contributed to policy knowledge on labor market intermediation (Fitzgerald, 2006; Hutson, 2006; Klein-Collins & Starr, 2007; Wilson, 2006). As noted above, although long-term care facilities and home health care agencies employ large numbers of entry-level, low-skilled workers, most are difficult environments in which to structure upward mobility opportunities because of low pay and a scarcity of mid-level positions. Hospitals, as we have seen, employ low- and moderately skilled workers along a graduated wage spectrum.

At the first rung on the ladder are “environmental services” and basic customer service workers who clean rooms, transport equipment and patients, and serve meals. One rung above these workers are entry-level technicians, administrative assistants, and paraprofessional workers such as nursing assistants who are involved in the direct care of patients. Workers who wish to advance beyond these positions typically require specialized certification or associates degrees; these third-rung positions include, in the technical field, lab technician, radiologic technologist, and surgical technician, and in the patient care field, medical assistant, practical nurse, and registered nurse. In a number of cases, hospitals and educational institutions, labor unions, and/or community-based groups have formed partnerships or consortia to help employees advance along these vectors. In many cases, they correspond with Giloth’s (2004) definition of workforce intermediaries, with the dual goal of promoting opportunities for entry-level workers and addressing hospitals’ need to reduce turnover, promote loyalty and worker retention, and fill mid-level positions for which shortages exist (Wilson, 2006).

In the late 1990s and early 2000s, several “first-generation” hospital career ladder programs succeeded in engaging commitment from employers, the energy of community organizations and educational institutions, and pilot funding from government and philanthropic sources. The programs typically featured two types of occupational training: one aimed at unemployed and out-of-the-labor-force individuals who sought positions on the first rung of the ladder, the other aimed at first-level incumbent workers (orderlies, patient transporters, housekeepers) who wished to advance to mid-level technical and patient care occupations. Participants in both types of training had access to career counseling and coaching, and their supervisors were brought into the process through training designed to help them become better mentors to their employees. The logic was that the two tracks would operate synergistically; as first-level workers were promoted into mid-level positions, they would generate vacancies that could be filled by workers just entering the hospital labor force.

A number of serious barriers faced these first-generation programs. The most fundamental was that many low-paid entry-level workers had such significant deficits in basic skills that they required remedial academic work before they could benefit from occupational training. Low-income workers had numerous sources of instability in their lives that threatened their ability to manage work and training simultaneously, particularly if the training occurred outside the workplace. In many cases, the prospect of relatively small earnings gains (in a shift from a food service job to a low-level patient care job, for example) was not enough to motivate individuals to complete (and sometimes partially finance) demanding training courses. Credentialing requirements for nursing assistant and allied health positions—although they offered the opportunity to formalize new skills that participants had required—also posed a hurdle, as individuals had to pass examinations in addition to completing training. In the single rigorous longitudinal evaluation that could be found of a hospital career ladder program, both groups of workers (new entry-level employees and incumbents) had high retention rates and experienced significant earnings increases. However, the program encountered greater difficulty than expected in promoting career mobility, with only 10% of each group ascending the career ladders defined by program sponsors (Hutson, 2006). Vacancies, especially at the first level, were more likely to be created by “churning” and turnover than by upward movement within the hospital job hierarchy. Although workforce development organizations succeeded in helping unemployed and underemployed individuals gain access to job openings, they had a more difficult time helping them gain access to the vacancies created by job chains initiated further up the wage hierarchy.

A second generation of hospital programs is aiming to address major issues encountered in the early initiatives. The Baltimore Alliance for Careers in Healthcare, a
second-generation program that is part of a national “Jobs to Careers” initiative funded by the Robert Wood Johnson and Hitachi Foundations, has incorporated work-based learning modules that are sequenced with classroom training (Klein-Collins & Starr, 2007). First, the program encourages basic skills remediation well before occupational training is attempted. Second, rather than assuming that former environmental services workers will automatically thrive in higher paid nursing assistant positions after a few months in the classroom, the program provides them with structured on-the-job instruction and mentoring. The Baltimore program also offers nursing assistants an opportunity (after additional classroom instruction and more work-based learning) to enter the newly defined position of “nurse extender,” which provides a second increase in wages13 (Klein-Collins & Starr 2007). This transition from nursing assistant to nurse extender replaces a bridge between entry-level and more advanced patient care that has been threatened by the elimination of the licensed practical nurse position from the hospital career ladder. Other programs in the Jobs to Careers initiative focus on career paths in medical informatics and technology in hospital settings.

It appears that in the hospital sector, a significant frontier is crossed when a worker is able to go from a Level 5 job (defined in Persky et al.’s [2004] typology as a job with earnings between $6.28 and $9.90 per hour) to a job at Level 4 or Level 3.14 Second-generation hospital programs are busy providing training and supports to workers to enable this transition. Workforce intermediaries also work with employers to define and clarify job classifications, to educate their employees about opportunities to increase their earnings (e.g., by earning credentials that enable them to move from direct care to technician work), and to make sure that increases in skill attainment are accompanied by great enough increases in compensation to motivate workers to acquire new skills (see also Pindus et al., 2004). Nonetheless, the barriers to individuals’ success in climbing hospital career ladders remain daunting, particularly given that very few workers have access to specialized programs such as the one described above. It should also be noted that the population of formerly incarcerated individuals, which is often large in the poor urban communities near hospitals, is excluded in large part from career pathways in these institutions.

A promising avenue for future endeavors in this area is related to Persky et al.’s (2004) finding that within-firm moves are less likely than between-firm moves to improve the lot of people at the lowest level of the wage hierarchy. Hospital career ladder programs have traditionally aimed to improve low-level employees’ opportunities with their current employers as opposed to helping them move among employers in an industry or to employers in related industries.15 Urban biomedical complexes, planned developments in which university teaching hospitals collocate with life sciences research facilities, physicians’ offices, specialty medical facilities, and even long-term residential care facilities, present an opportunity to map career pathways that span employers, and practitioners are already investigating the viability of these pathways.16

To accurately characterize likely multiemployer pathways, and to secure the cooperation and participation of biomedical campus employers in workforce development efforts, will require particularly agile and intelligent workforce intermediation efforts and the commitment of far more resources than have heretofore been available to prepare unemployed and low-skilled incumbent workers to move up. Although the chain model that forms the foundation for this exercise is based on an economy characterized primarily by underemployment (rather than chronic unemployment), the workforce development interventions that are needed most in struggling and impoverished central city neighborhoods are those that focus on providing serious training to ready poorly prepared workers for higher level jobs. The intensive training approach is much more difficult than the “creaming” implicit in the job chain model. At the same time, however, the welfare gains from such efforts, if successful, are likely to be much larger than gains from interventions that simply prime the labor market by creating opportunities for the underemployed to advance.

Conclusions/Directions for Further Research

The results of our relatively simple application of the job chain method underscore a conclusion drawn by Felsenstein and Persky (1999) a decade ago: “The occupational distributions of new jobs strongly affect the degree to which jobs translate into local welfare improvements” (p. 50). At base, our results suggest that if local and regional officials are seeking to maximize returns on economic development subsidy, they should concentrate on industry sectors in which job chains are medium length and where vacancies generated by job growth fall solidly in the middle of the earnings distribution. Economic development scholarship urging a conceptual shift toward occupational targeting (see Koo, 2005; Markusen, 2004) can be strengthened and elaborated by the investigation of industry occupational structure and of job chains. The directive to target occupations has, in our view, led in practice to a fixation with attracting highly skilled “knowledge workers” to cities and regions. A job chains approach has the potential to refocus attention on sectors and firms—and on the less educated workers who arguably benefit most from local economic development policy—without sacrificing the valuable insights of the occupational perspective. As Markusen (2004) notes, “planners working to stem central city decline and/or concerned with minority participation and
jobs for underemployed groups may find occupational groupings easier to distinguish and target than industries” (p. 255).

As noted above, Persky et al.’s (2004) PSID sample was too small to generate vacancy chain estimates for specific industries. Our estimates rely on the inference that the operation of job chains in each of the four industries examined here looks exactly like their operation in the overall economy. More direct empirical research on individual industry sectors would be required to relax this assumption. Future research should investigate job chains at the industry level.

Our research is also limited from a practical perspective in the sense that occupational tracks (nursing, administrative, technician) within the hospital industry are not directly investigated by our empirical model, nor are the complexities of employer hiring and promotion practices or of credentialing and skills certification. We have relied on secondary literature to characterize the challenges that face efforts to promote mobility and advancement for low-paid workers in hospital settings as well as to describe promising recent innovations in program design and implementation that may reduce the barriers facing low-skilled workers who wish to advance. Despite these limitations, we hope that in the context of recent work on the potential of hospitals as “anchor institutions” and central city growth drivers (see Bartik & Erickcek, 2007; Nelson, 2009), economic development practitioners will develop increased appreciation for the ways in which hospital-focused strategies can also expand opportunity for unemployed and underemployed groups. Although high-profile projects in tourism and advanced services can lead central city economic development officials to overlook the potential of “meds and eds” (see also Adams, 2003), our conclusions suggest that hospitals deserve a closer look in urban economic development practice.

A second policy implication has to do with the nature of federal funding geared toward enabling people to earn their way out of poverty. Very little funding available through either the U.S. Department of Labor or the Department of Health and Human Services supports training or support services for low-paid incumbent workers. Nor do most funding streams support the work-based learning models or mentoring that many of the working poor appear to require to advance along skill and pay tracks within the hospital sector; the career ladder programs described above have been financed with “demonstration” funding and philanthropic contributions. Our results suggest that in hospitals, though perhaps not in the other industries examined, substantial grants to multifaceted workforce intermediation efforts dedicated to helping low-level incumbent workers move up would constitute a worthwhile public-sector investment.

**Declaration of Conflicting Interests**

The authors declared no conflicts of interest with respect to the authorship and/or publication of this article.

**Funding**

The authors received no financial support for the research and/or authorship of this article. The authors did receive an award based upon this work: National Urban Initiatives Competition, 1st place economic development track. ($20,000). Proposal title: Job Chains and Career Ladders in the Health Care Sector: Prospects for Poverty Reduction through Workforce Development in New Orleans, 2008.

**Notes**

1. A limitation of our analysis is the fact that Persky et al.’s (2004) sample of “job events”—defined as taking a position with a new employer or changing positions within their current employer—comes from the PSID for the years 1987-1992. To the extent that any of the structural parameters of vacancy chains have changed since that time, we are not able to capture this.

2. The authors argued that conventional impact analysis both overestimates and underestimates the welfare effects of subsidized job creation. It overestimates impact by equating welfare gain from the direct jobs created with the total earnings of the workers taking those jobs, where this is properly measured using opportunity costs—that is, the incremental difference between workers’ new earnings and what they earned in their previous jobs. At the same time, conventional impact measurement underestimates impact by failing to account for welfare improvements along the vacancy chains that unfold as new jobs become available and workers move into them, making their jobs available to other job movers or new labor market entrants. Whereas most economic development impact studies take into account only the effects of jobs directly created by a stimulus, the job chains approach enables policy makers to measure the welfare gains by workers all along the chain of vacancies opened up when each new job is created.

3. Persky et al. (2004) differentiate reservation wages for unemployed workers hired into the five wage groups.

4. Each wage group’s lower bound is approximately two thirds of its upper bound (Persky et al., 2004).

5. Persky et al.’s (2004) PSID sample was too small to generate vacancy chain estimates for specific industries. Our estimates require an assumption that the operation of job chains in each of the four industries examined here looks exactly like their operation in the overall economy. More direct empirical research in the individual industries would be required to relax this assumption.

6. Persky et al. (2004) used PSID answers on job moves to estimate the probability that a job at a given level is filled from a worker in the same wage group, from a lower wage group, from the unemployed population, from the “out of labor force” population, or from outside the region. For example, per Table 2, when new vacancies are generated in the highest wage group (Level 1), workers already at Level I—that is, workers making effectively lateral moves from other Level 1 jobs—will occupy 41.1% of the new Level 1 jobs generated. In-migrants will fill an additional 20.1%. Persky et al. assume that downward job
movements are exogenous to the vacancy chain created by the generation of a new job and thus allocated downward moves to all other categories.


8. Although there are limited opportunities for advancement in the hospitality industry, Pindus, Dyer, Ratchiffe, Trutko, and Isbell (1997) found that, due to high turnover, individuals who remained with the same employer over a long period did have some opportunities to advance, because they were viewed as “senior” or “experienced” more quickly. Advancement opportunities in hospitality are also enhanced by the fact that round-the-clock operation in hotels creates more “shift supervisor” positions.

9. Fitzgerald (2006) highlights innovative efforts to improve the working conditions and earnings of paraprofessionals employed in long-term care and home health care. An increasing number of home care workers are represented by unions, for example, and some nursing homes and home care agencies have created pay and skill tiers within occupational categories to reduce turnover and boost quality of care. See also Maier (2002), Pindus, O’Brien, Conway, Haskins, and Rademacher (2004), and Paraprofessional Healthcare Institute at www.phinational.org.

10. Although the hospital career ladder at one time included the intermediate title of licensed practical nurse (LPN) between nursing assistant and registered nurse, hospitals have phased out the LPN position in recent years, choosing to increase the ranks of registered nurses and give them greater supervisory responsibility over direct care nursing assistants. LPNs continue to be in demand in long-term care settings.

11. Programs surveyed for this summary review include the Boston Healthcare and Research Training Institute, Partners in Career and Workforce Development (Boston), and the Harris County Hospital District Career Lattice Initiative (Houston area; Council on Adult and Experiential Learning, 2005; FutureWorks, 2004; Hutson, 2006).

12. Better advancement results were obtained in a U.S. Department of Labor-funded project at St. Raphael’s and Yale-New Haven hospitals in New Haven, Connecticut (Pindus et al., 2004).

13. Extenders are “advanced nursing assistants,” trained to support registered nurses by performing tasks such as IV starts, EKGs, and oxygen therapy (Klein-Collins & Starr, 2007).

14. The Level 3 or 4 to Level 2 transition is also significant, and typically requires community college-level certification or the attainment of an associates degree. Fitzgerald (2006) documents the bridge from practical to registered nursing, and several “Jobs to Careers” demonstration sites are also concentrated on this type of job move.

15. Fitzgerald (2006) and Hutson (2006) both highlight the organizational dilemmas created by supervisor reluctance to “let go of” the talented employees most likely to qualify for promotion. This problem is intensified even further with an employee’s prospective move to a different employer, perhaps a direct competitor.

16. A cursory scan of recent biomedical campus development reveals life sciences research facilities colocating or preparing to colocate with acute care and ambulatory care facilities in Aurora, CO, Baltimore, MD, New Orleans, LA, and Philadelphia, PA.

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Bios

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