

IMPACT BRIEF

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Industry Clusters Affect Job Mobility and Earnings Growth

Research question: Does geographic clustering by firms in the same industry affect workers' job mobility and earnings trajectory?

Conclusion: Industry clusters are associated with greater job hopping and faster growth in workers' earning power relative to the experience of workers at less spatially concentrated companies. Workers in these clusters tend to accept lower starting salaries than peers at more isolated firms in anticipation of rapid gains that accompany movement from job to job within the cluster and the accumulation of industry-specific knowledge. Higher earnings observed among workers in clustered firms may also reflect choices made by workers with certain characteristics to seek employment in an area with a high concentration of similar firms and by companies with certain characteristics to locate in such an area.

Policy implications: The research summarized here pertains to the software publishing industry but may be applicable to other industries in which rapid innovation and human capital accumulation are valued and rewarded. Labor markets may function more smoothly where firms are clustered by industry: job searching is easier and employers have ready access to workers with proven abilities. Moreover, investment in human capital is less costly for employees and employers alike because of the speed and ease with which workers in

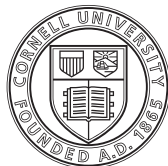
clusters exchange information and learn from peers. Business executives at knowledge-intensive companies and community planners concerned about economic development may draw on this research when considering, respectively, potential locations for new facilities or policies that support the formation of high-tech industry clusters.

Abstract: Economists have long noted the large and persistent wage premium associated with urban settings. Companies located in cities tend to attract higher quality workers and pay higher wages. There is some evidence that urban concentration facilitates knowledge spillovers among workers and firms and reduces what economists call "friction" in the complementary processes of job searching and hiring. Theorists have suggested that geographic concentration by firms in the same industry interacts with labor market functioning and human capital accumulation in much the same way.

Analysis of a longitudinal data set containing matched employer and employee information from the software publishing industry seems to support the theory. Clustering by establishments affects job and income mobility in ways consistent with increased learning and human capital formation. These results are based on models that control for observed and unobserved differences in workers and firms.

By way of background, software publishing in the United States is concentrated within certain geographic areas, above and beyond what would be expected given the natural spatial distribution of economic activity. In-

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dividual firms within these clusters are themselves more or less clustered, which reflects their proximity to more or fewer similar firms. (The researcher constructed a measure for this study that indicates the extent to which each firm in the sample is clustered while accounting for the level of urbanization.) Workers at these clustered firms earn higher salaries on average, and also enjoy greater within-job wage gains than peers at less clustered firms. These workers also tend to be younger, more highly educated, and non-white.

Although the majority of workers who quit a software publishing job find another job outside the industry, clustering promotes greater job hopping among workers who remain within the industry. The data also show that the gap in job-change frequency between employees in more clustered and less clustered firms increases over time; the longer an individual works in a cluster, the greater the likelihood he or she will take a next job in the industry. Thus, clustering helps smooth the functioning of the labor market: with many similar companies nearby, workers easily scan the environment for new opportunities while employers readily pluck from a seasoned pool of labor.

The lure of higher earnings as careers progress may motivate workers to seek out new jobs within industry clusters. Although workers in a cluster tend to accept relatively low starting salaries, workers in more clustered establishments tend to experience relatively strong earnings growth compared to their counterparts in less clustered establishments. In other words, the earnings-tenure profile among software workers in clusters is tilted, with lower initial earnings that increase quickly over time relative to peers who work outside the clusters.

This earnings trajectory supports the notion that workers in clusters accumulate industry-specific human

capital that employers are willing to pay for. Clusters facilitate an exchange of knowledge and information through social and professional networks, while the prospect of a seemingly endless stream of job opportunities reduces the risk to workers of developing a specialization in this particular industry.

Further analysis of the data suggests that certain unobserved characteristics among workers and firms partially explain the wage premium and earnings dynamics within industry clusters. Workers tend to self-select into clusters; these individuals may be more innately talented or ambitious than those who choose to work at more dispersed firms. Companies may likewise have a preference for a clustered location given their organizational structure, say, or future product plans. Even when this sorting is taken into account, the evidence suggests that clustering affects labor market functioning and human capital formation in significant ways.

Methodology: This research is based on a data set constructed and maintained by the U.S. Census Bureau's Longitudinal Employer-Household Dynamics Program. It covers a 12-year period from the third quarter of 1991 through the third quarter of 2003 and includes more than 2,400 firms, 153,000 workers, and 170,000 jobs. The analysis derives from econometric models that control for factors such as race, gender, age, education, firm size, and geographic variables, and that address unobserved heterogeneity among workers and firms.

Source publication: "Job Hopping, Earnings Dynamics, and Industrial Agglomeration in the Software Publishing Industry" is forthcoming in the *Journal of Urban Economics*.

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