

The Transferability of Skills

Highlights

- Productivity losses during recessions are likely to depend directly on the ease with which displaced workers can find new employment where their skills are appropriately valued.
- The extent of wage loss associated with job displacement depends on how closely related the skill requirements for the new job are to those used in the pre-displacement job (i.e. the transferability of skills).
- Roughly one-third of displaced workers find new employment in the same occupation class, experiencing relatively small wage losses averaging 5%.
- Roughly one-in-four displaced workers make a significant switch in the type and amount of skills used in their occupation. These workers experience sizeable wage losses averaging 17%.
- Displaced workers find their way back to much more similar jobs than would occur with random mobility.
- Displaced workers are increasingly finding their way back to more and more similar jobs in recent years.

Most workers change jobs several times during their careers, especially during the first few years after they enter the labour market. On the one hand, frequent job changes may be a cause for concern if workers have acquired job-specific skills that do not easily transfer to other places of employment. On the other hand, switching jobs may reflect worker's efforts to find a better job match to their current skills.

The relative importance of these two opposing forces depends largely on whether a job change is voluntary or involuntary. Many voluntary changes are associated with promotions or the natural progression up a career ladder. Young workers just entering the labour market may also be moving from temporary makeshift work to career employment. In either case, these job changes tend to be associated with increases in worker pay. By contrast, involuntary job changes often result from layoffs and plant closures and are typically associated with pay reductions that can be substantial. Involuntary job changes from worker displacement are particularly prevalent and of considerable concern during economic downturns, like the one recently experienced throughout much of the world.

In times of increased job mobility and uncertainty, it is critically important for the evaluation and design of labour market policy to understand how easy or difficult it is for displaced workers to transfer their skills across jobs. Productivity losses during recessionary periods are likely to be directly linked

to the ease with which displaced workers can find new employment where their skills are appropriately valued. Policies aimed at facilitating this matching process can help limit wage and productivity losses. The extent to which policymakers should concern themselves with these issues depends on the specificity or transferability of skills across occupations and jobs.

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In two recent CIBC Centre Working Papers (2008-3 and 2011-5), Chris Robinson empirically examines the transferability of skills by measuring how job skill requirements change for workers when they switch employers, voluntarily or involuntarily. He further examines the extent to which changes in skill utilization across occupations impacts the wages of workers that switch jobs.

Workers may change jobs voluntarily for personal reasons or to move ahead professionally. Following a move up a career ladder, the new job may be quite different from the old one, involving a promotion to a different occupation in which all skills are used at a higher level. Not surprisingly, these moves are typically accompanied by wage gains. By contrast, involuntary moves tend to result in skill utilization downgrades and wage declines. Interestingly, voluntary and involuntary moves tend to result in changes in skill utilization of a similar degree — only the direction of the change differs.

Job Displacement and Skill Transferability

In “Human Capital Specificity: Evidence from the Dictionary of Occupational Titles and Displaced Worker Surveys 1984 2000”, Robinson (with Maxim Poletaev) explores the skill and wage losses associated with involuntary worker displacement from plant closures. Some workers experience sizeable wages losses, while others see little or no decline in their wages. As one might expect, the extent of wage loss depends on how closely related the skill requirements for the post-displacement job are to those used in the pre-displacement job

(i.e. the transferability of skills).

Based on data from the 1984-2010 United States Displaced Worker Surveys, roughly one-third of displaced workers find new employment in the same occupation class. These workers experience relatively small wage losses averaging 5%. Other workers switch occupations altogether. Roughly one-in-four displaced workers make a significant switch in the type and amount of skills used in their occupation.

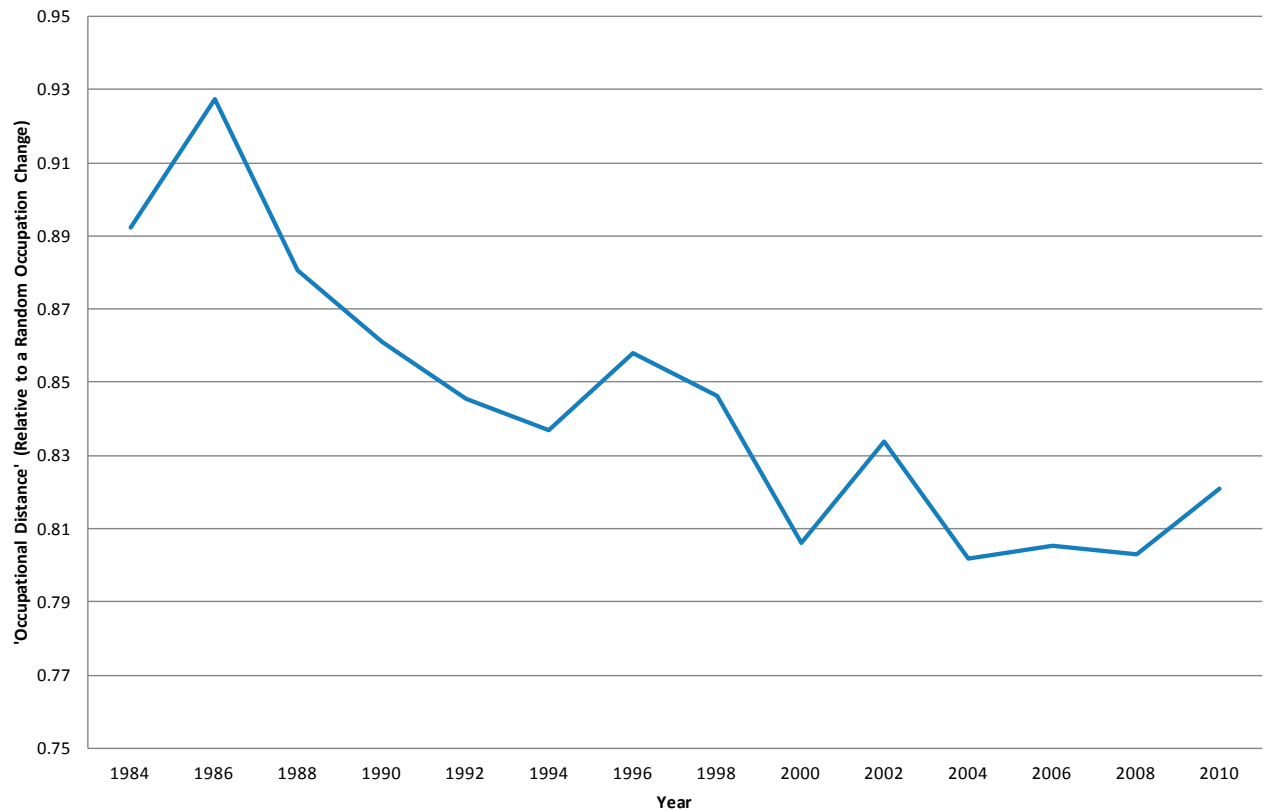
These workers experience sizeable wage losses averaging 17%. Finally, among displaced workers who switch occupation but manage to avoid a significant change in the type and amount of skills utilized, wage losses average a more modest 9%. See Box 1 for a detailed description of how the skills used in different occupations are measured, along with corresponding measures of ‘occupational distance’.

Box 1 - Measuring ‘Occupational Distance’

Measures of how close any two occupations are in terms of the skills they use – referred to as ‘occupational distance’ – are calculated using data from a detailed examination of over 12,000 jobs in the U.S., known as the Dictionary of Occupational Titles (DOT). Job analysts scored each job in terms of a large number of characteristics, such as the required level of finger dexterity, the level of mathematical or writing ability, the required amount of strength, etc. Using a technique known as factor analysis, Robinson and Poletaev condense this information to associate with each occupation a level of four basic skills, called a skill portfolio, each derived from the analysts’ measures of all job characteristics. These four basic skills roughly correspond to ‘general intelligence related’, ‘fine motor skills related’, ‘strength and gross motor skills related’, and ‘visual skills related’. Any two occupations are considered similar if they have similar skill portfolios. Occupations may differ for two reasons. First, they may use a different mix of skills. For example an accountant uses a high level of mathematics but a low level of strength compared with a construction worker. Second, occupations may use similar types of skills, but they may use them at very different levels.

Most of the analysis discussed in this brief focuses on changes in skills and wages associated with movements across the nearly 500 occupations distinguished in the U.S. three digit occupation coding system. However, not all jobs within an occupation code have the same skill portfolio. Based on data from the DOT, the average distance of random within-occupation moves is about half the average for random moves across occupations. Thus, skills are not fully transferable across jobs even for displaced workers who remain in the same occupation class. Unfortunately, it is not possible to link changes in skill requirements across jobs within the same occupation to associated changes in wages, since standard data sets that contain wage measures, such as the March Current Population Surveys and Displaced Worker Surveys, do not measure jobs at a finer level than the three digit occupational classification.

Figure 1: 'Occupational Distance' Between New and Old Occupations for Displaced Male Workers in US



In “Occupational Mobility, Occupation Distance and Specific Human Capital”, Robinson shows that displaced workers find their way back to much more similar jobs than would occur with random mobility. For example, if displaced workers randomly selected among all occupations, fewer than two percent would end up finding re-employment in their same occupation – much less than the one-third that actually remain in the same occupation class. Furthermore, among those workers that switch occupations, the change in skill requirements is typically less than one would expect if they were randomly selecting among all possible occupations.

More importantly, displaced workers are increasingly finding their way back to more and more similar jobs in recent years. Conditional on changing occupations, displaced workers in 1985 found new jobs that were, on average, only a little better matched to their skills than if they had randomly accepted a new job in a different occupation. More precisely, the ‘occupational distance’ (see Box 1) between their old and new jobs was roughly 90% of the ‘occupational distance’ between any two randomly selected occupations. Over the past 25 years, Figure 1 shows that this skill distance has fallen by nearly 10 percentage points. This suggests that the productivity and income losses from involuntary worker mobility may be declining significantly,

raising important questions about what labour market or policy influences are improving the occupational re-assignment of displaced workers.

Many studies have shown that providing job search assistance can have a high pay off for displaced workers. By contrast, numerous policy experiments and decades of research have shown very little return to providing training opportunities to most displaced workers (Jones 2012). Together, these findings suggest that public policies aimed at helping displaced experienced workers find new jobs that utilize the skills they have spent their careers building may be more cost-effective than trying to re-train them for entirely new occupations.

References

Chris Robinson, “[Occupational Mobility, Occupation Distance and Specific Human Capital](#)”, CIBC Centre for Human Capital and Productivity, Working Paper 2011-5, 2011.

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