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Seniority in Germany: New Evidence on Returns to Tenure for Male Full-time Workers

In this study we investigate the life-cycle patterns of wages. Typically we observe inverse u-shaped life-cycle patterns where wages go up during the longest periods. Economic theory presents (at least) two approaches to explain such patterns. According to human capital theory workers gain firm-specific and general knowledge (i. e. human capital) over their life course, which raise their productivity and thus their wages. The theory of deferred compensation (Lazear 1979) argues that it is necessary to motivate workers to provide effort when they cannot be promoted any further. If workers are paid below their productivity when they are young and above their productivity when they are old, they have an incentive not to shirk. Were they to shirk they could be fired and would lose the add-on to their productivity-based wages. Thus deferred compensation helps to motivate high effort over the entire productive life.

By international comparison we observe rather low labor force participation rates among older workers in Germany. We ask whether seniority-based pay makes the employment of older workers too expensive and whether this might be behind such low employment rates. The literature provides a number of different and partly contradictory results with respect to the returns to firm-specific work experience.

The key empirical challenge in determining the true returns to seniority is to distinguish between true causal effects of seniority on wages and spuriously higher wages among older employees which would result if particularly those with higher wages stay with the firm longer. The literature has developed several approaches to separate the two mechanisms. One of these approaches is known as the instrumental variables method by Altonji and Shakotko (1987) the other is a two-step procedure developed by Topel (1991). Empirically the Altonji and Shakotko approach typically yields a lower bound and the Topel estimator an upper bound to the true returns to seniority. In our study we apply the Altonji and Shakotko approach.

We extend the existing literature in several dimensions. First, we do not just consider the evidence for western Germany but add eastern Germany to our analysis. Second, while some studies did not attempt to distinguish between the impact of life-cycle effects via general labor market experience and those working through firm-specific experience, we pay attention to this aspect as we are interested in determining the returns to seniority. Third, we distinguish between life-cycle earnings patterns in the private and the public sector. We use data from the most recent surveys of the German Socio-Economic Panel (2002–2006). Our sample considers men aged 25–60 who worked for at least 35 hours per week on full-time contracts.

Some of our results come as a surprise, others confirm the prior literature. In simple linear regressions without instrumental variable procedures we find clear returns to general as well as firm-specific human capital in both eastern and western Germany. The first ten years with a given employer are associated with wage increases of about 13 percent in western and about 18 percent in eastern Germany. In addition, ten years of general labor market experience adds 25 percent to the wages in western and 18 percent to the wages in eastern Germany. The simple estimations already yield clearly different patterns in the wage structure in the two German regions. However, only instrumental variable estimators will generate reliable evidence regarding the causal effect of job seniority on wages.

Once we control for the potential endogeneity of seniority, the returns to seniority lose their statistical significance for the samples in both regions of the country. In addition, the returns to general labor market experience in eastern Germany are far below the western German levels. While ten years of labor market experience yield wage increases of 35 percent in western Germany the increase amounts to a mere 16 percent in eastern Germany.

One may speculate that part of the explanation for this difference might be related to a depreciation of general labor market experience gathered in eastern Germany prior to unification. In order to test this explanation we restricted our sample to only those individuals who were born after 1970, as these workers had not gathered any substantial labor market experience prior to unification. However, the results did not change when only the restricted sample was applied. Also for the more recent birth cohorts life-cycle wage patterns differ between eastern and western Germany: returns to labor market experience are much lower in eastern than in western Germany.

In addition, wage patterns differ between employees in the public sector in eastern and western Germany. Here, the returns to seniority are higher in the east than in the west. However, these estimates are not statistically significantly different from zero. The general pattern of much lower returns to general labor market experience in eastern than in western Germany holds for employment in the public sector as well as for employment in the private sector.

Overall, we find no confirmation for the hypothesis that low employment rates among older German workers are caused by overly high returns to seniority. Our results are robust to changes in model specifications and to the selection of different subsamples. In all groups considered, eastern and western Germany, private and public sectors, the returns to seniority disappear once instrumental variable estimators are applied. Nevertheless, we find substantial differences in the eastern and western German wage structures, where life-cycle patterns in eastern Germany are substantially flatter than in western Germany. This is a result to be investigated in greater detail in further research.